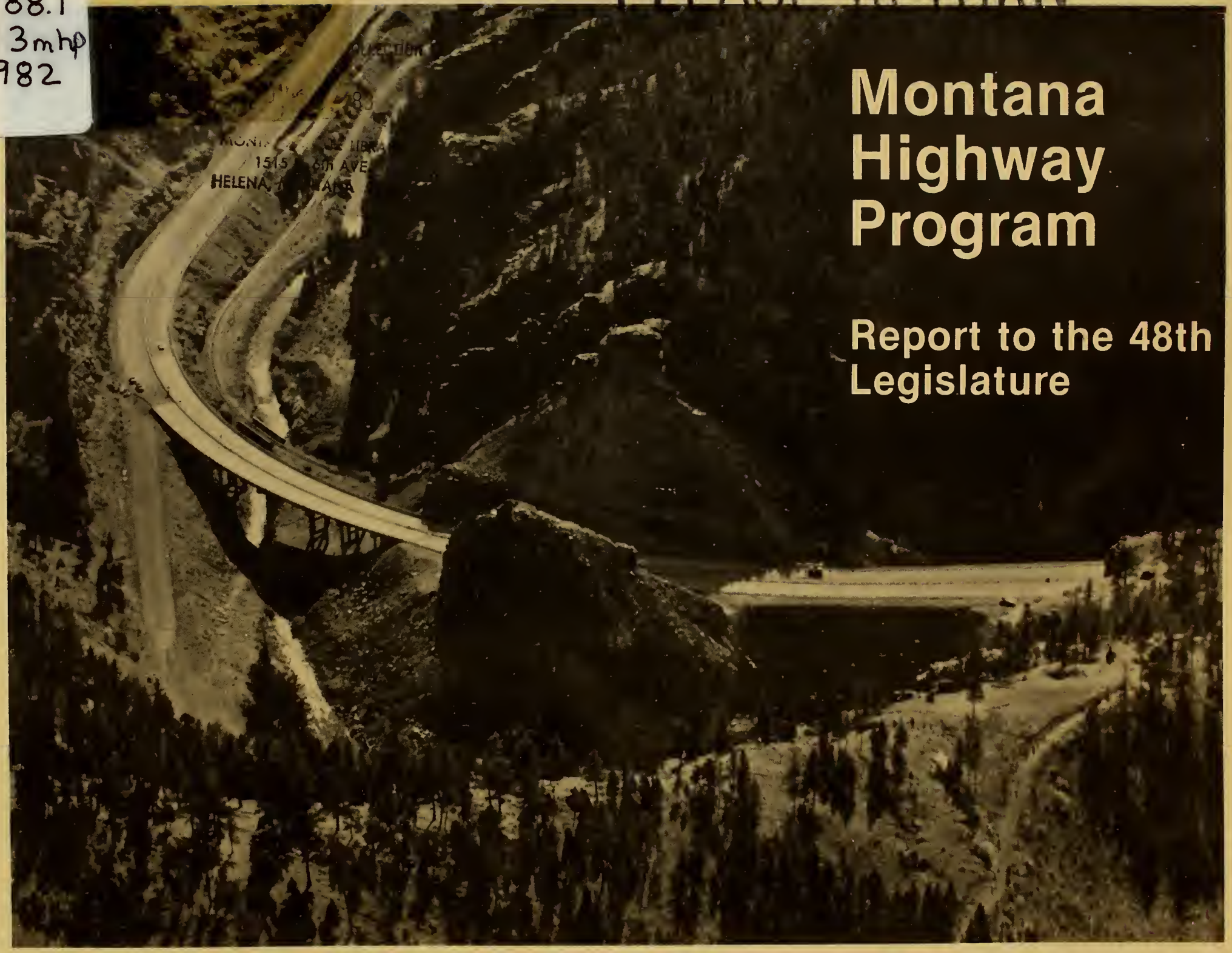
S
388.1
H3mhp
1982

PLEASE RETURN



Montana Highway Program

Report to the 48th Legislature

APR 1 9 1984
JUL 5 1990

Montana State Library
3 0864 1006 1768 0

83
4C
(3 volumes)

Montana Highway Program

Report to
The Forty-Eighth Legislature

State of Montana
Ted Schwinden, Governor

Department of Highways
Gary J. Wicks, Director

Helena, Montana

November, 1982

CONTENTS

TABLE OF CONTENTS

	Page
Introduction	1
Montana's Highways	2
Highway Administration	4
Montana Highway Commission	4
Montana Department of Highways	6
Highway Use	8
Montana Highway Program Finances	11
Program Finances	11
Allocating the Highway Dollar	11
Highway Program Revenues	11
Highway Program Expenditures	15
Highway Needs	16
The 1974 Needs Study	16
The 1982 Needs Assessment	16
Needs Based on Full Design Standards	18
Needs Analysis Based on a Modified Level of Service	21
Highway Program Management	24
Reorganization	24
Management Systems	24
Build Montana: The Highway Program	27
Program Objectives	27
Program Assumptions	27
Program Proposals	28
Program Benefits	29
The 1984-85 Highway Budget	30
The 1984-85 Highway Program	30

LIST OF FIGURES

		Page
1	Montana's Highways	3
2	Highway Commissioner Districts	5
3	Highway Department Organization Chart	7
4	Motor Vehicle Registration	8
5	Vehicle Miles of Travel on Federal-Aid System	8
6	Rural Traffic Volumes	9
7	Highway Financial Districts	12
8	Revenues and Disbursements, Fiscal Year 1982	13
9	Montana Motor Fuel — Taxable Gallonage	14
10	Montana Highway Program Expenditures, 1978-1983	15
11	Age of Rural Primary System	17
12	Miles of Rural Primary Constructed	17
13	Adjusted Sufficiency Rating On Primary System	18
14	Sufficiency Ratings — Rural Primary System	19
15	Montana Highway Functional Classification	22
16	Budget vs. Expenditure Levels for 1983 Biennium	25
17	Department of Highways Employees	25
18	Highway Program: Financial District 1	33
19	Highway Program: Financial District 2	35
20	Highway Program: Financial District 3	37
21	Highway Program: Financial District 4	39
22	Highway Program: Financial District 5	41
23	Highway Program: Financial District 6	43
24	Highway Program: Financial District 7	45
25	Highway Program: Financial District 8	47
26	Highway Program: Financial District 9	49
27	Highway Program: Financial District 10	51
28	Highway Program: Financial District 11	53
29	Highway Program: Financial District 12	55

LIST OF TABLES

		Page
1	Federal-Aid System Mileage	2
2	Highway Department Employees by Division	6
3	Railroad Route Miles in Montana	10
4	Federal-Aid Apportionments to Montana	11
5	Highway Earmarked Revenue Account	13
6	Federal Receipts, 1975-1983	14
7	Federal Obligation Authority, 1978-1983	14
8	Fuel Tax Receipts, 1975-1983	14
9	Montana Highway Program Expenditures, 1978-1983	15
10	Needs Assessment for Montana Highways, Full Design Standards	20
11	Needs Assessment for Montana Highways, Modified Service Level	23
12	Project List, Financial District 1	32
13	Project List, Financial District 2	34
14	Project List, Financial District 3	36
15	Project List, Financial District 4	38
16	Project List, Financial District 5	40
17	Project List, Financial District 6	42
18	Project List, Financial District 7	44
19	Project List, Financial District 8	46
20	Project List, Financial District 9	48
21	Project List, Financial District 10	50
22	Project List, Financial District 11	52
23	Project List, Financial District 12	54

INTRODUCTION

The 1983 Legislative Session will be a watershed point for highway programs in Montana. Several new proposals for the 1982 Legislature have been approved by Governor Schwinden and are included in this report. If enacted, these proposals will fundamentally affect the manner in which Montana's highways are constructed, reconstructed, repaired, and maintained, and in which this work is financed. If all or even some of these proposals fail, the condition of Montana's roadways will continue to deteriorate.

The significance of this proposal should not be underestimated. Roads are a key element in any state's transportation system, but they are particularly important to Montana. With the decline of the state's rail system and deregulation of the airlines, Montana's ability to compete in national and international markets is even more heavily dependent on the extent and condition of its highway network.

The current condition of these highways is distressing. A total of 2,660 miles — 50 percent — of Montana's primary highways need reconstruction or repair. About 40 percent of the state's nearly 2,300 bridges are substandard. And the interstate system in Montana is still incomplete; four major gaps in the system need to be closed.

The problem has been compounded by the recent cutbacks in federal highway assistance. On just the interstate system, for example, Montana's federal apportionment was reduced by 43 percent between fiscal years 1981 and 1982. At current funding levels, completion of the interstate system in Montana will be delayed until at least the mid-1990s — at best more than 25 years behind schedule. And, the other highway systems in the state will continue to deteriorate at an accelerating rate. Consequently, future taxpayers could be facing an even greater funding burden than today.

The current funding levels are thus an exercise in false economy — a shortsighted policy, given the state's great dependence on highways. While it is true that we are confronted with increasing financial limitations, it is also a fact that Montana's highway needs far exceed existing financial resources. The program proposed here represents an effort to strike a balance between needs and available resources — one which would enable the state to obtain a much improved highway system, but not one that would meet all existing needs or solve every problem.

Over the past two years, the Department of Highways has been the subject of a good deal of critical scrutiny. In addition to GTAC, the Joint Subcommittee on Highways, and the Governor's Council on Management, thorough performance and financial audits have been conducted by the Legislative Auditor. The Department has also conducted internal reviews which led to a series of organizational and cost-saving modifications. Although the agency has not solved all of its problems, a number of highly important changes have been made in the way business is conducted. In addition several conclusions have been reached about what should be done in the future to improve Montana's highway system.

The purpose of this report is to build on those operating changes already implemented and to move forward with planning and program development efforts which have been initiated by the present Administration, GTAC, the Joint Subcommittee, the Governor's Management Council and the Legislative Audit. As such, this document contains basic background information on the Department of Highways and its programs; data on the Department's financial condition; an assessment of Montana's highway needs over the next decade; and specific program proposals for the 1984-85 biennium. Its primary focus is on the highway construction program; various other areas such as maintenance and administrative services are not dealt with in any detail.

This report also reflects the initial stages of a fundamental policy change for the Montana Highway program; in the future, preventative maintenance (or "pavement preservation") will be accorded the highest priority in Department planning and programming. This policy is based on the premise that in the long run, it will be much less expensive to resurface and repave the state's roadways on a regular cycle than to fully reconstruct them after serious deterioration has taken place.

The information is presented in this form in the hope that it will assist members of the forty-eighth Legislature as well as the citizens of Montana to better evaluate the state's highway needs and the Department's plans for meeting those needs, both during the next biennium and the next decade. For, as all the studies of the past two years have concluded, unless drastic action is taken to stop the deterioration the state's multi-billion dollar highway investment, as well as the potential for long-term economic prosperity, will be jeopardized. This must not be allowed to happen.

This document presents a program designed to substantially improve Montana's major highway systems over the next ten years. In a sense, it is a program that is still being developed, since it will take at least two more years to perfect the details before it can be fully implemented. But time is not a luxury which we possess. Action must be taken now, and with the assistance of all Montanans, approval of the program here will represent a major step forward in preserving and rebuilding Montana's principal transportation system.

MONTANA'S HIGHWAYS

There are 78,152 miles of highways and roads in Montana. The state is responsible for the 11,704 miles which are considered part of the Federal-aid system. A breakdown of this mileage is shown in the following table:

Table 1
Federal-Aid System Mileage

Interstate	1,194 mi.
Primary	5,469 mi.
Secondary	4,706 mi.
Urban	335 mi.
Total:	11,704 mi.

The highways and related facilities and structures that make up the Federal-aid system qualify for various levels of assistance from the more than thirty categorical programs administered by the federal government. The various components of the Federal-aid system are as follows:

Interstate

The Interstate System was authorized by the Federal-Aid Highway Act of 1956, in order to develop a national network of safe, high-quality roads to facilitate commerce, personal mobility, and national defense. In Montana, the system was designed to ultimately consist of 1,189 miles of highway. The original completion date was scheduled for 1971. At the present time, some 46 miles of four-lane and 28 miles of two-lane interstate have yet to be constructed. The current estimated cost to complete the remaining miles is $154 million, with a completion date of the mid-1990s being most likely at current funding levels. Federal funds are available for construction, and for "4R" activities, which include resurfacing, restoration, rehabilitation and reconstruction. Preventative maintenance is wholly the responsibility of the state. In addition, engineering, land purchase, and other related costs are allowable. Priorities are established by the Department of Highways. Federal Interstate funds are currently matched by state funds at a ratio of 91.21 percent federal to 8.79 percent state.

Primary

The Primary System in Montana is the main trunk highway network which is designed to connect the major urban and economic centers. It was originally designed to serve an economic purpose, i.e., expedite the movement of goods between market centers. The Primary System in Montana consists of 5,469 miles of highway. Federal funds may be used for construction, reconstruction, various approaches to resurfacing and rehabilitation, and for related engineering costs; the current Federal share is 78.35 percent, while the state share is 21.65 percent. The Department of Highways sets construction, reconstruction, and maintenance priorities.

Secondary

The Secondary System was authorized in 1944, and qualifies for federal funds for construction and resurfacing. Priorities for construction and reconstruction are set by individual counties, while maintenance is almost entirely the responsibility of the individual counties. The Secondary Road System in Montana consists of 4,706 miles of road, 2,525 miles of which are paved. The Secondary System was originally conceived as a collector system — a means of facilitating the movement of goods from farm to market. While it still serves that purpose, it also acts as a collector system for commuters and other similar kinds of transportation activities. The current Federal share is 78.35 percent while the state share is 21.65 percent.

Urban

The Urban System consists of those sections of urban collectors or arterials located in urban areas. The Urban System in Montana consists of 335 miles and is provided for through a planning process that is conducted at the local level where construction, reconstruction and maintenance priorities are established. The urban mileage in Montana is located in 15 cities and towns. The current Federal share is 78.35 percent, while the state share is 21.65 percent.

Bridge Replacement and Reconstruction

The bridges on the Federal-aid System can be constructed with regular Federal-aid highway construction funds, but bridges that are considered seriously deficient are also eligible for replacement or rehabilitation with separate bridge replacement funds. Currently there are 2,272 major bridges (over 20 feet long) in the state on the Federal-aid System. The State Highway Department establishes priorities; the Federal funding share is 80 percent, while the state share is 20 percent.

Other Programs

There are various other categorical programs that qualify for federal assistance, including safety-hazard elimination, railway crossing hazard elimination, economic growth center activity, forest highways, etc. All of these programs are provided for in the Federal Highway Act and funds are specifically earmarked for the construction, reconstruction, and rehabilitation of the facilities, structures, and roadways involved in these various programs.

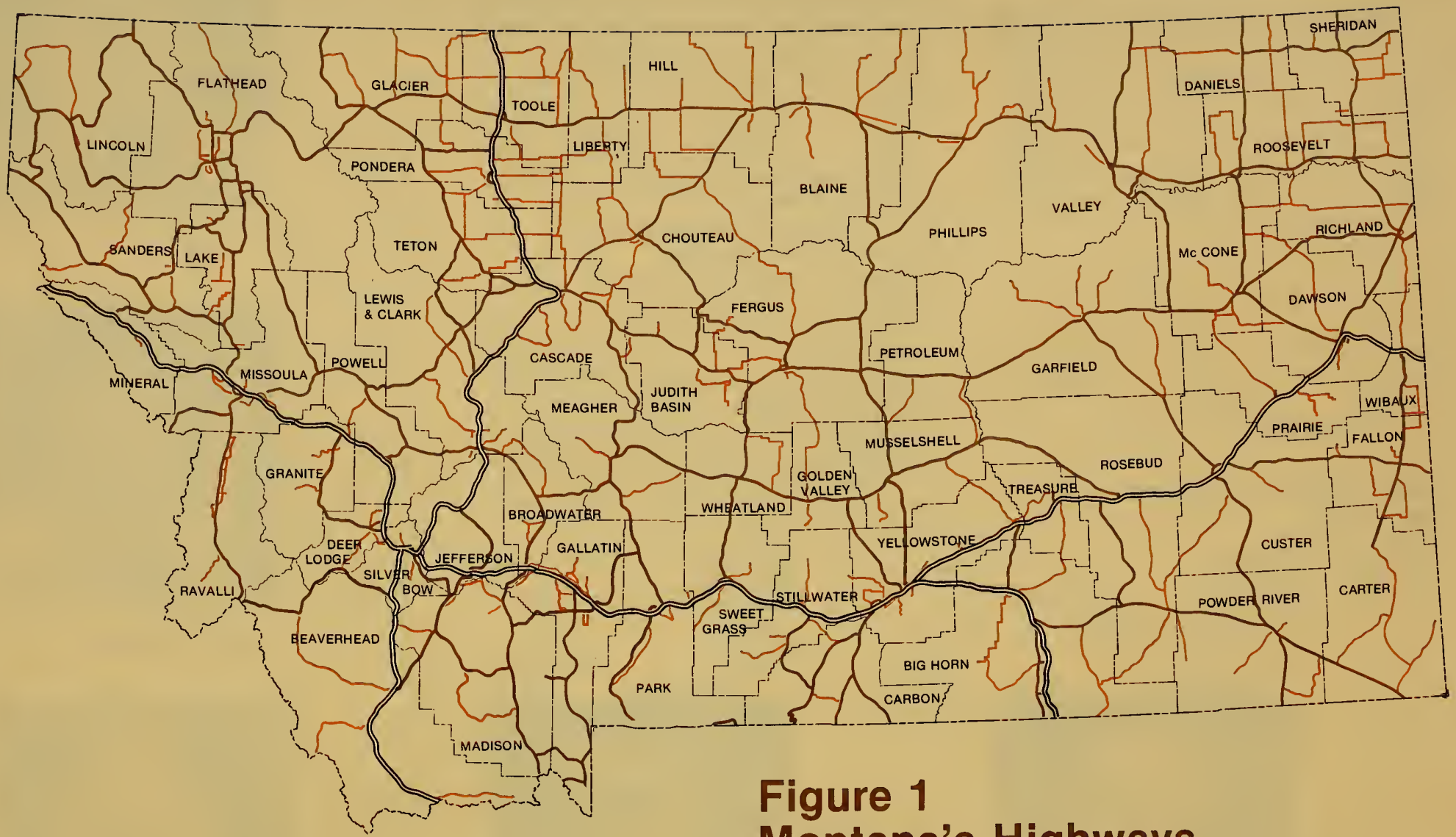


Figure 1
Montana's Highways

Interstate
Primary
Secondary

HIGHWAY ADMINISTRATION

Highway programs are administered by the Montana Department of Highways together with the Montana Highway Commission. The Montana Highway Commission designates the Federal-aid Highway System and provides advice and counsel to the Department. The Department of Highways has the responsibility to construct, maintain and operate the highway system.

Montana Highway Commission

The Montana Highway Commission consists of a board of five members appointed by the Governor from five separate commissioner districts. Each member serves a four-year term. The Highway Commission is required by law to meet at least once each month to conduct business. Highway Commission meetings are generally held in Helena, and are open to the public. Current members of the highway commission are listed in the table below.

The principal responsibilities of the Highway Commission are:

- Approving highway projects and bid lettings;
- Awarding all contracts on Federal-aid and state highways;
- Designating and abandoning Federal-aid and state highways;
- Establishing speed zones on highways;
- Controlling or limiting access to highways;
- Controlling outdoor advertising on interstate and primary highways.

Highway Commission Members

District	Member	Residence	Term Expires
1	Roy Duff	Whitefish	1983
2	John Sullivan, Vice-Chairman	Livingston	1985
3	Ilert Hellebust, Chairman	Havre	1985
4	Gerald Archambeault	Glasgow	1983
5	Paul Foster	Billings	1985

Ilert Hellebust, Chairman

John Sullivan, Vice-Chairman

Paul Foster

Gerald Archambeault

Roy Duff

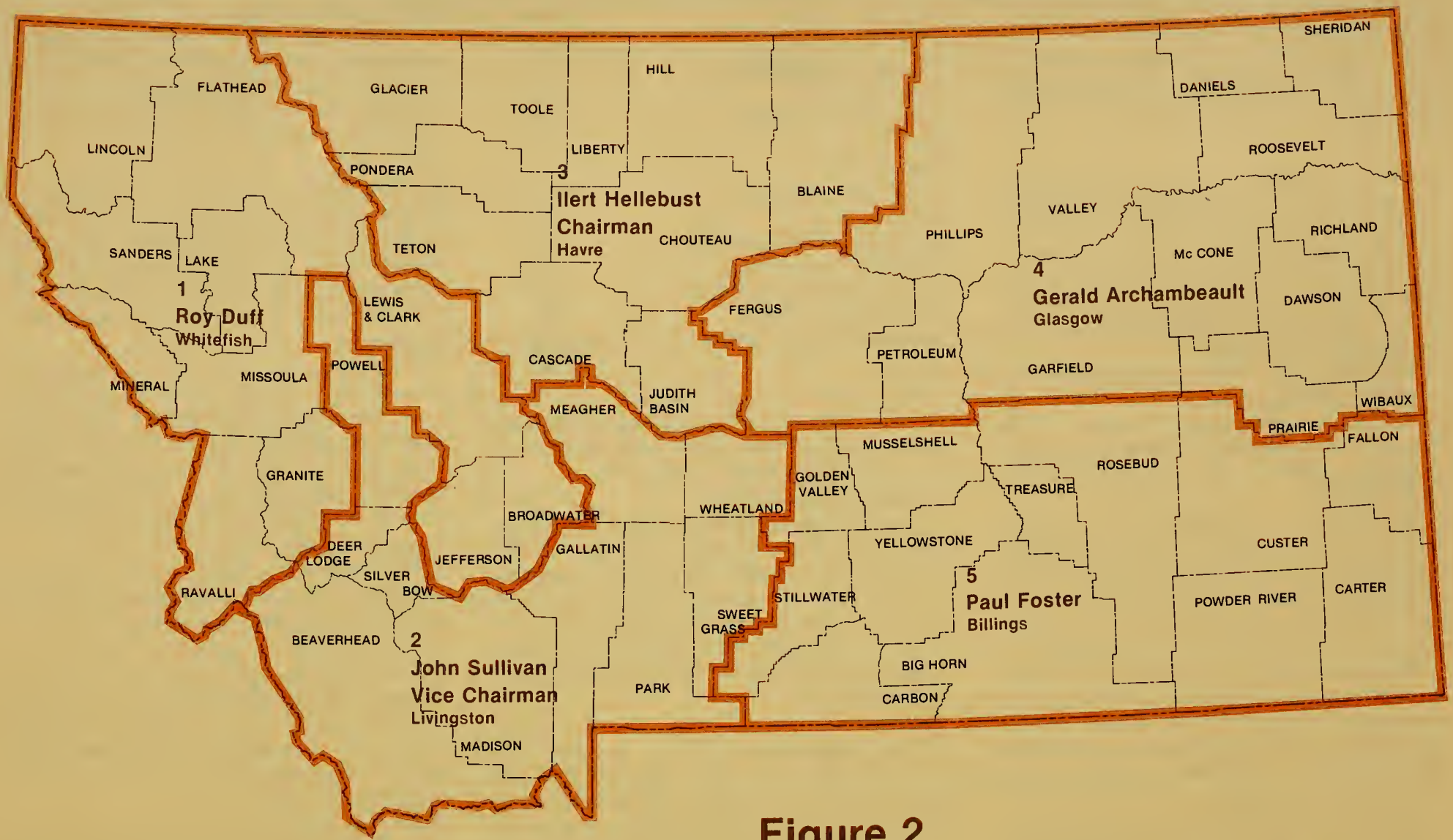


Figure 2
Highway Commissioner Districts

Commissioner District Boundaries

3 Commissioner District Numbers

Montana Department of Highways

The Montana Department of Highways, under the administration of a Director appointed directly by the Governor, is responsible for the day-to-day operation, maintenance, and construction of Montana's highways. The principal duties of the Department are:

- The planning, design, construction, reconstruction and maintenance of highways under the Department's jurisdiction.
- The apportionment of state construction funds to the various highway systems, and the selection of projects to be constructed.
- The acquisition of property necessary for highway construction.
- The administration of the provisions of the Outdoor Advertising Act.
- The administration and control of the gross vehicle weight of vehicles operating on highways under the jurisdiction of the Department.

The design and construction of the Federal-aid Interstate, Primary, Secondary, and Urban systems are the responsibility of the Department. The Department maintains the interstate and primary system, and those secondary roads that are under a maintenance agreement between the county in which they are located and the State; other secondary roads are maintained by the jurisdictions in which they are located. The Department's maintenance program is 100 percent state-funded.

At the beginning of Fiscal Year 1983 the Department had a total of 1,759 employees, of whom 595 were located in the Helena headquarters offices and 1,164 in the field under the jurisdiction of the district offices in Butte, Billings, Missoula, Great Falls, and Glendive. This compares with a maximum authorized level of 2,306 employees in the Department as of 1980.

Table 2
Highway Department
Employees by Division

Division	No. of Employees
Program Development	57
Engineering	277
Centralized Services	90
Legal	8
Personnel	7
Gross Vehicle Weight	95
Maintenance	61
Glendive District Office	210
Billings District Office	205
Great Falls District Office	206
Butte District Office	280
Missoula District Office	263
Total:	1,759

The responsibilities of each division shown in the organization chart on the opposite page are listed as follows:

Program Development

This division programs all major construction and reconstruction projects for the Department, manages the federal assistance program, coordinates pavement management and safety project activities, and carries out planning data analysis including needs assessment, sufficiency studies, and traffic analysis.

Engineering

The Engineering Division designs and builds roads and bridges. To do this, all preconstruction activities including road design, right-of-way acquisition, environmental impact assessments public hearings, and many other details are accomplished by the engineers.

The Engineering Division also manages the process of letting the projects to bid. After the Highway Commission awards projects to the successful bidders, the Engineering Division administers the contracts, tests and analyzes construction materials, inspects the work for compliance with specifications, and reviews contractor performance.

Centralized Services

Centralized Services provides budgeting, accounting, data processing and word processing support to program divisions and manages the Department's safety promotion and employee training programs.

Legal

The Legal Division provides legal counsel and support to the Director and Commission in carrying out statutory duties and responsibilities, and provides legal support to the right-of-way program for land acquisition for construction and reconstruction projects.

Personnel

This division provides support and assistance to program divisions in recruiting new employees, coordinates the Department's employee performance appraisal program, and provides advice and assistance to program managers in interpreting and enforcing personnel policies and procedures.

Gross Vehicle Weight

This division enforces truck weight and dimension laws and regulations, and issues special permits and licenses as required.

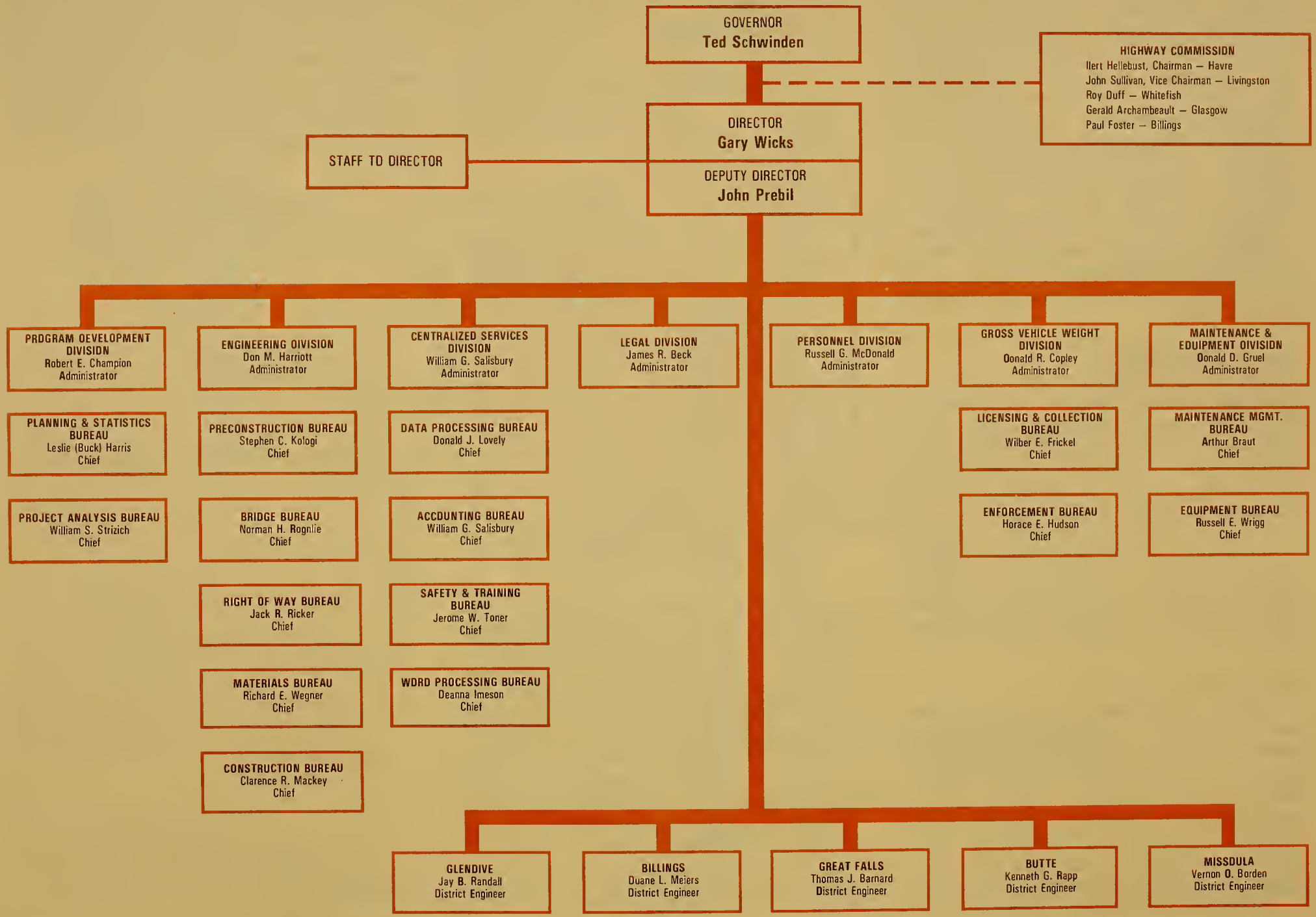
Maintenance and Equipment

This division programs all major and routine road maintenance and snow removal activities and projects, evaluates field performance in carrying out maintenance activities, and manages the Department's equipment fleet.

Field Districts

The five field district offices supervise and administer construction, reconstruction, maintenance and contracted maintenance projects in their respective districts, perform routine roadway design activities, review construction plans, and represent the Department in dealing with local officials and residents.

Figure 3
Highway Department Organization Chart



HIGHWAY USE

Highway use and finance are closely related subjects. The financing for Montana's highways comes primarily from user fees such as fuel taxes and Gross Vehicle Weight fees. As vehicles have become more fuel-efficient, the amount of fuel used per mile driven has been reduced, with a corresponding decrease in fuel taxes and revenue available for highway improvements. This problem has been compounded by the effects of inflation over the past several years. The net effect of this trend is increased wear and tear on the highways due to higher traffic, but less real dollars with which to construct, reconstruct, and maintain the highway system.

Vehicle Registration

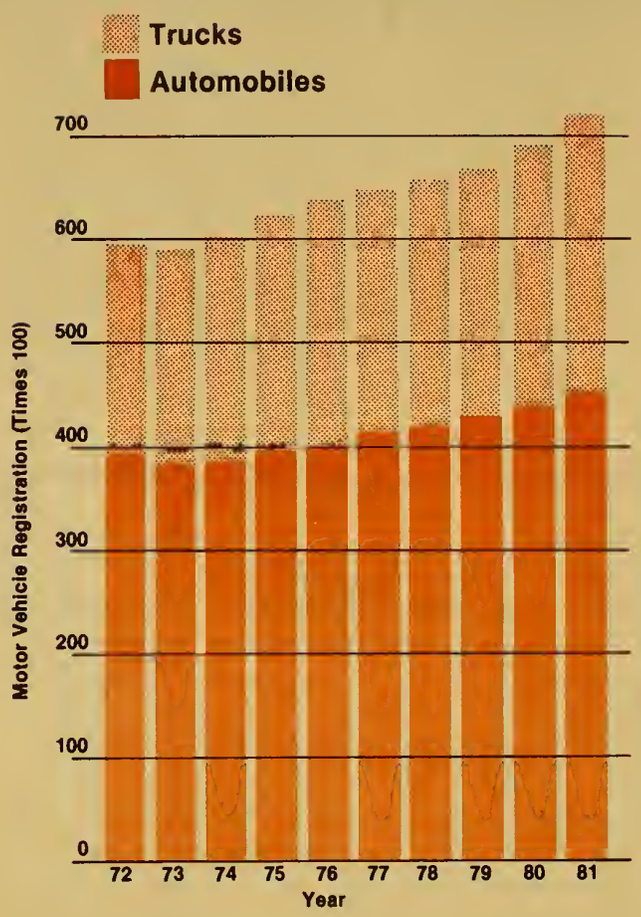
Registration of automobiles has been climbing steadily during the past decade. The total number of automobiles and trucks was 718,177 in 1981 compared to a total of 593,972 in 1972 — a 21 percent increase. During this time period, Montana's population increased by approximately 13 percent.

A history of vehicle registration in Montana from 1972 to 1981 is shown in the above figure. The years 1976, 1977, and 1978 are estimates due to a changeover to a staggered registration system and automated record-keeping during this period.

Vehicle Miles of Travel

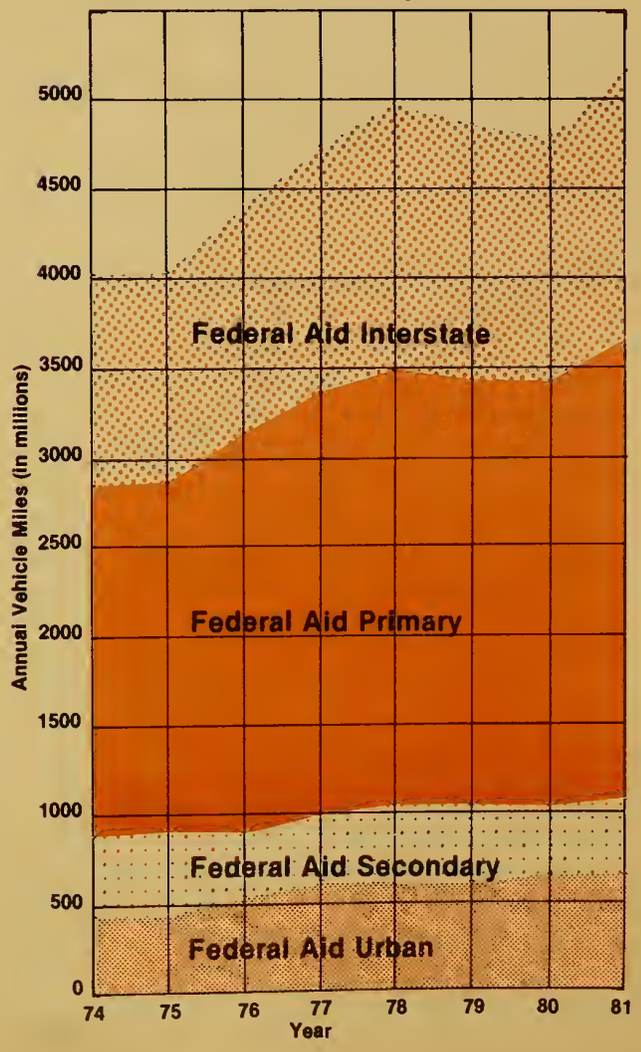
Travel on Montana's highways has also been steadily gaining except for those years where fuel shortages and higher prices or economic conditions have caused short-term declines. The peak year for travel in Montana as well as most other states was 1978. Travel volumes in 1981 and estimated travel volumes for 1982 are very close to the 1978 peak. Travel volumes are about 30 percent higher than they were ten years ago, but the number of miles of public highways, roads and streets has only grown from 69,664 miles in 1972 to 71,701 miles in 1981 — a three percent increase. Most of this growth is the result of an increase in miles of streets in residential subdivisions. These statistics illustrate that the system mileage in Montana has remained relatively constant but the use of these roads has increased and will continue to increase in the future. This is partially due to the increased population and tourist traffic in Montana, but also is a result of declining air and rail service.

Figure 4
Motor Vehicle Registration



As Figure 5 illustrates, the largest volume of vehicle miles travelled has consistently occurred on the primary system, followed by the interstate system. The greatest increase in miles travelled since 1974 has also occured on the primary system, with the interstate system again a close second. Total vehicle miles travelled on the urban and secondary systems combined equals only one-quarter of the miles travelled on both the primary and interstate systems.

Figure 5
Vehicle Miles of Travel on Federal-Aid System



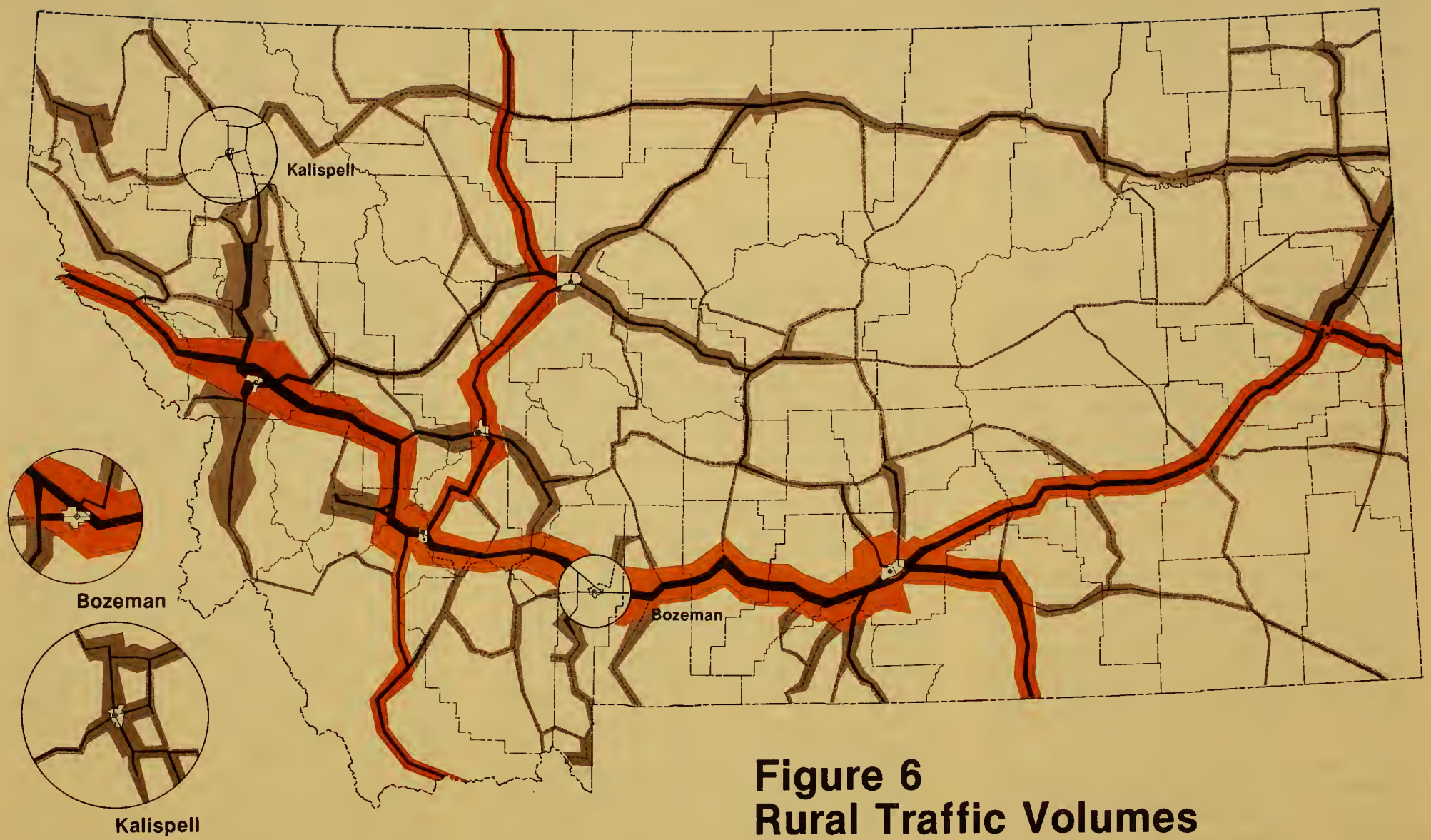


Figure 6
Rural Traffic Volumes

Traffic Flow Patterns

Use of Montana's primary and interstate highways can be even better understood by examining the traffic flow map included as Figure 6. The three interstate routes clearly receive the highest volumes, but significant use is also made of much of U.S. 2, U.S. 93, U.S. 12 in the western part of the state, and the western sections of Montana 200.

Other Transportation Modes

The decline in the availability and level of service for other modes of transportation in recent years, particularly rail service, has increased the already dominant role of highways as the primary means of transportation in Montana.

Rail service in Montana has declined drastically since the Milwaukee Railroad ceased to operate in 1980, when 918 route miles of rail line were abruptly removed from service. That left the Burlington Northern with 93 percent of the railroad trackage as the only railroad that operates a rail network system in the state. Minor trackage is also operated by the Butte, Anaconda, and Pacific, Soo Line, and Union Pacific railroads.

The current trend in rail freight operations is to improve the efficiency of rail shipping by combining freight loads into unit trains. While unit trains are more efficient and result in lower freight rates for larger shippers, the system is accelerating the abandonment of branchlines, thereby isolating some shippers. Since 1972 about 22 percent of the route miles in Montana have been abandoned, as shown in the following table. The only alternative for commodities that were previously shipped by rail is the highway system.

Montana is served by 121 public airports of which 8 have major airline service and 7 are served by commuter airlines. Cities having major airlines service include Billings, Great Falls, Missoula, Helena, Butte, Bozeman, Kalispell, and West Yellowstone. Cities having commuter airline service are Havre, Glendive, Miles City, Lewistown, Glasgow, Sidney, and Wolf Point. Major air carriers in Montana are Northwest, Frontier, Western, and Continental. Commuter airlines are Big Sky, Cascade, and Aspen. Coombs Freight Air provides air freight service to Billings and Great Falls.

Table 3
Railroad Route Miles in Montana

	1972	1982	Net Abandoned
Milwaukee	1,168.0	78.6	917.6
Soo Line	56.9	56.9	0.0
U.P.	142.7	133.3	9.4
BA&P	45.9	31.9	14.0
WSS&YP	22.9	0.0	22.9
B.N.	4,311.5	4,209.1	275.2
Total:	5,747.9	4,509.8	1,239.1

Source: Transportation Bureau, Montana Dept. of Commerce

In 1978 the airline industry was deregulated, and as a result is in a state of flux at this time. Changes in schedules and rates have been rapid, and service has been erratic. However, in the judgment of the Montana Aeronautics Commission, there is more frequent service since deregulation, particularly in those areas that are served by commuter airlines. This is likely a consequence of the greater competition caused by deregulation.

Even with the more frequent service, the number of enplanements at the 15 air carrier airports has declined. The peak year for enplanements was 1979 with a total of 858,583, which declined to 687,684 in 1981, a 25 percent decrease. This was primarily attributed to the poor economic conditions of the past two years.

Although aviation is an important part of Montana's overall transportation system, there are no changes foreseeable in the future of the aviation industry that would have a significant impact on Montana's highways. The decline in enplanements during the past two years has likely resulted in a minor increase in highway traffic, but probably not to the extent that a measurable impact has occurred.

Conclusion

All of the indicators show that the use of Montana's highways is up and should continue to increase over the next several years. This fact will likely be compounded by conditions in the airline and rail industries in the state. Thus the pressure on the state's highways should be even greater in the future than it is now.

MONTANA HIGHWAY PROGRAM FINANCES

Program Finances

The statement which probably best characterizes the financial situation of the Montana highway program is that in an era of dramatically escalating needs, resources are dwindling. This is true for both state and federal funds. As a result, program expenditures have had to be significantly reduced in the current biennium.

Allocating the Highway Dollar

Montana's highway funds derive from a variety of federal and state sources, with the method of distribution dependent on the source. The bulk of Montana's highway construction funds come from the federal government, while construction matching and maintenance funds are generated by the state. All maintenance costs are 100 percent state funded.

Federal revenues flow to the state from the Federal Highway Administration (FHWA), an agency of the U.S. Department of Transportation. Each year the FHWA apportions Federal Highway funds to Montana for each of the various federally-aided systems or program categories; e.g., interstate, primary, bridge replacement, and safety. Table 4 shows the 1982 apportionment levels for the program's major categories. State funds are used to match the federal funds at the specific matching ratio set for each program. The state matching funds for each program category are then distributed among the twelve financial districts in the state and local governmental entities in accordance with the Financial District Law. Since the matching ratio for each program is constant in a given year, the federal funds are, in effect, distributed in the same proportion as are the state funds.

Table 4
Federal-Aid Apportionments to Montana

Interstate (including I-4R)	$ 36,381,403
Primary	17,466,427
Secondary	7,204,361
Urban	3,841,894
Bridge Replacement	3,244,547
Other	10,943,695
Total:	$ 79,082,327

For several years the federal government, as a budgetary measure, has placed an "all programs" obligation ceiling on each state which is less than the sum of the funds apportioned to all of the program categories. This creates a situation where the fund balances which are being carried on Department books consist mostly of unspendable money; they are a sort of "IOU" from the federal government. But the obligation ceiling is the key to understanding the actual level of funds being provided by the federal goverment. It constitutes the actual level of dollars the Department has available to commit to new projects. For example, while Montana's apportionment in FY 1982 was $79 million, its FY 1982 obligation ceiling was $66 million — the amount of funds that could actually be spent. In FY 1983, the unusable apportionment balance will be $52 million.

While the allocation of maintenance funds throughout the state is at the discretion of the Department of Highways, distribution of construction funds is accomplished according to the state Financial District Law. This statute was enacted so that each highway system and area of the state would receive a fair share of highway construction funds. Separate allocation formulas are used for the Federal-Aid Interstate, Primary, Secondary, and Urban systems as well as other, more specialized programs. Only state highway funds are subject to this law, but since the state money is generally used to match federal funds, the net effect is a distribution of all highway monies. It is important to note that the distribution of funds to financial districts is based on the state's apportionment and not the obligation level. Therefore, financial districts will likely be carrying larger apportionment balances than there are dollars to spend.

The distribution of funds required by the Financial District Law for the major highway programs in Montana is as follows:

Interstate

Federal Interstate funds are matched by state funds. The state matching funds are then distributed to the twelve financial districts in the ratio of the cost of completing the interstate system in each financial district to the total cost of completing the interstate system in the state. A financial district may overrun its yearly allocation by 300 percent.

Primary

Federal Primary funds are matched by state funds and the state matching funds are then distributed to the twelve financial districts based on a ratio of the deficient Primary mileage in each financial district to the total deficient Primary mileage in the state. A financial district may overrun its yearly allocation by 25 percent.

Secondary

State funds are used to match federal funds and are distributed to each county on the basis of the following criteria: 1) one-fourth in the ratio of the land area in each county to the land area in the state; 2) one-fourth in the ratio of the rural population in each county to the rural population of the state; 3) one-fourth in the ratio of the rural road mileage in each county to the rural road

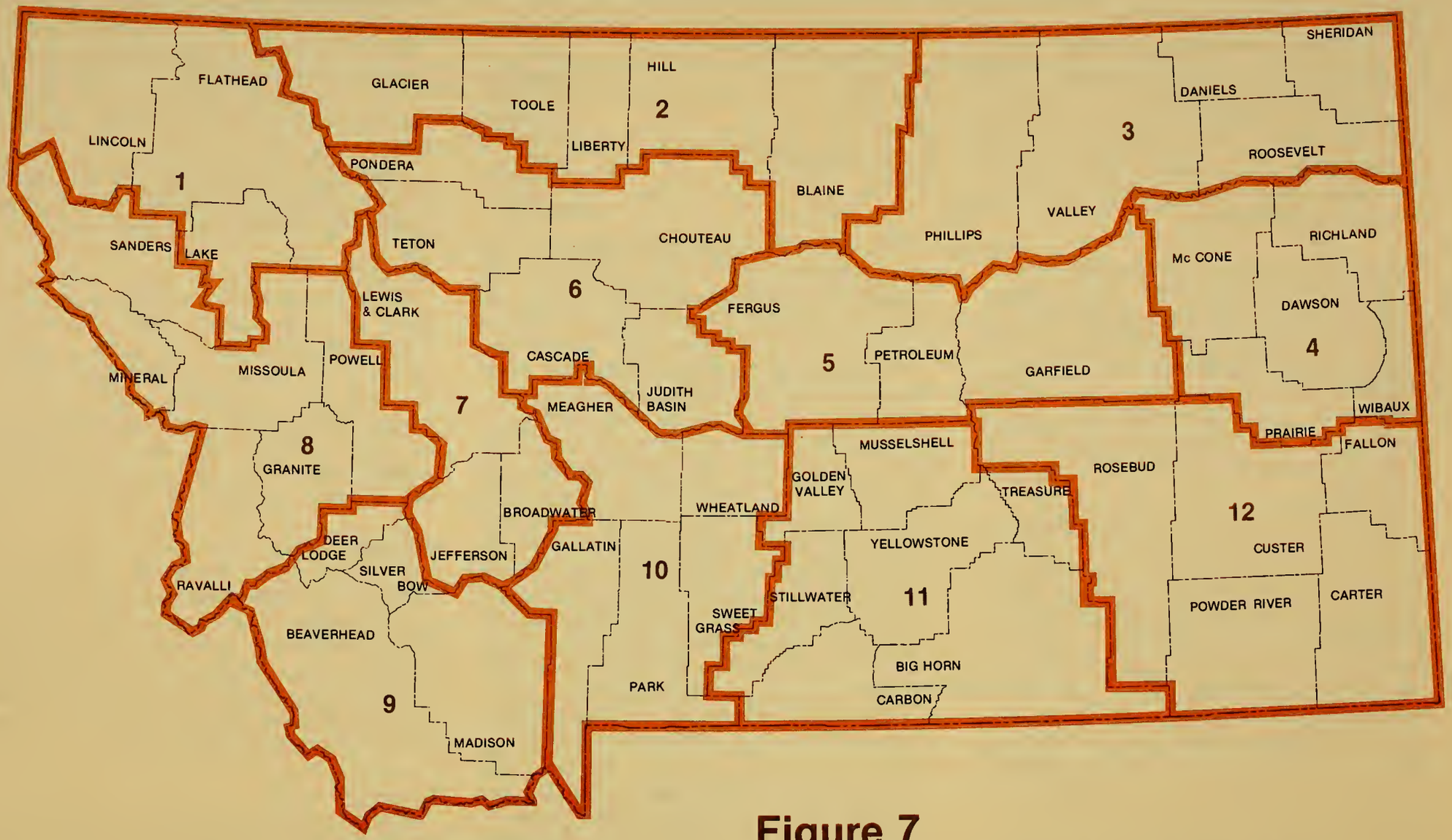


Figure 7
Highway Financial Districts

Financial District Boundaries

10 Financial District Numbers

mileage of the state; and 4) one-fourth in the ratio of the value of rural lands in each county to the total value of rural land in the state. A county may overrun its yearly allocation by 300 percent, but the financial districts are limited to a 25 percent overrun in their yearly allocation.

Urban

Federal Urban funds are matched by state funds and are distributed to all cities in the state having over 5,000 population in the ratio of the population of each city over 5,000 to the total population of all cities over 5,000 in the state. The total overrun by city cannot exceed the total urban allocation.

Other highway programs include the Economic Growth Center Program, the Forest Highway Program, the Safer Off-System Roads Program, and the Highway Safety Program (high hazard location, pavement marking, rail-highway crossings, and bridge replacement). Information on the distribution of funding for these programs may be obtained from the Department of Highways office in Helena.

The Financial District law has been criticized by the Joint Interim Subcommittee on Highways and the 1982 Legislative Audit because the distribution of funds by Financial District is required regardless of need.

As the Legislative Audit points out on page 25, "The Financial District Law causes projects to be constructed based on their priority within their respective financial districts regardless of their priority statewide . . . In other words, financial districts with many critical miles can have several projects that on a statewide basis would rank higher than the top priority project of a district with few or no critical miles. But the statewide ranking has little meaning since the top priority projects in each district receive that district's funding."

In many cases, a major project will require an accumulation of annual apportionments for a number of years before it can be funded because the restrictions on funding in a given district may prevent adequate funds from being available. This situation can be particularly acute in the distribution of Primary, Secondary and Urban highway funds.

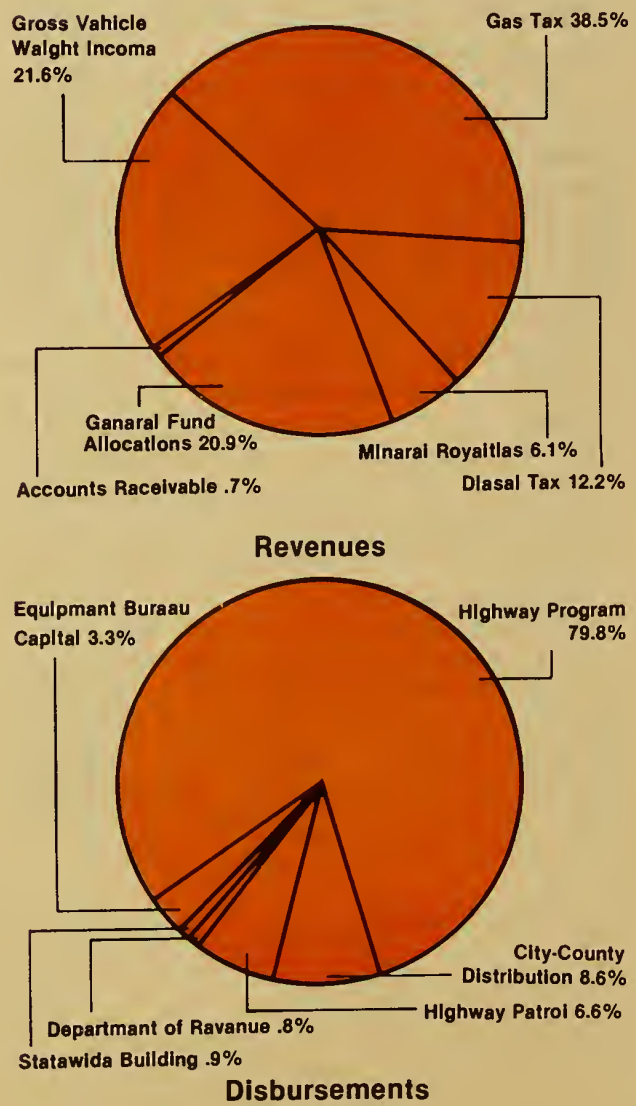
Highway Program Revenues

Highway program revenues are collected and disbursed in several different accounts but the major ones are the Federal Reserve Account which is the repository for all Federal assistance, and the Highway Earmarked Revenue Account which is the repository for allstate revenues, generated primarily from user fees. It is important to note that considerably more funds flow through the Highway Fund each fiscal year than are actually used in the highway program itself. Figure 8 and Table 5 illustrate this fact by showing both revenues and expenditures of the account for fiscal year 1982. As the disbursement chart indicates, 20.2 percent of state-generates revenues are diverted to other agencies. The remainder of the funds is disbursed to the highway program.

Table 5
Highway Earmarked Revenue Account

Revenues	
Gross Vehicle Weight Income	$20,627,540
Gas Tax	36,835,366
Diesel Tax	11,697,235
Mineral Royalties	5,815,873
General Fund Allocation	20,000,000
Accounts Receivable	666,649
Total:	$95,642,663
Disbursements	
Highway Program	$60,958,949
City-County Distribution	6,575,000
Highway Patrol	5,013,868
Department of Revenue	604,900
Statewide Building	677,993
Equipment Bureau Capital	2,500,992
Total:	$76,331,702

Figure 8
Revenues and Disbursements, Fiscal Year 1982



The most dramatic change in highway revenues over the past few years has resulted from a substantial reduction in federal funding. Following a peak in 1980 when the state received $133 million, federal obligation levels have dropped off markedly, to an expected low of $66 million in fiscal year 1983. And while it is anticipated that federal assistance will increase to about $80 million by 1985, that would only restore the state to 1978 federal funding levels. Table 6 shows actual federal funds received or expected to be received between 1975 and 1983, while Table 7 shows federal obligation authority for the same period.

The other principal revenue sources — state-imposed motor fuels tax receipts — have generally continued to rise over the past decade but at a substantially reduced rate. In fact, motor fuel use in Montana has been erratic over the past several years. Highway use of gasoline in 1981 was at about the same level as it was in 1973. Gasoline use peaked in 1978, and for the last few years has declined. This is attributed to the trend toward lighter and more fuel-efficient vehicles. While this trend is admirable from the standpoint of saving valuable petroleum resources, it provides less revenue for the construction, maintenance and operation of Montana's highways.

The use of special fuels such as diesel, liquid petroleum, and gasohol has steadily increased. In 1960 only 10 percent of the motor fuel used on highways was a special fuel; by 1981, the use of such fuels had increased to 19 percent. Table 8 shows fuel tax collections from 1975 through 1983.

Table 6
Federal Receipts, 1975-1983
(in thousands of dollars)

Fiscal Year	Federal Receipts
1975	$ 47,981
1976	72,664
1977	102,960
1978	87,461
1979	76,539
1980	133,273
1981	123,623
1982	74,156
1983*	87,045

* projected

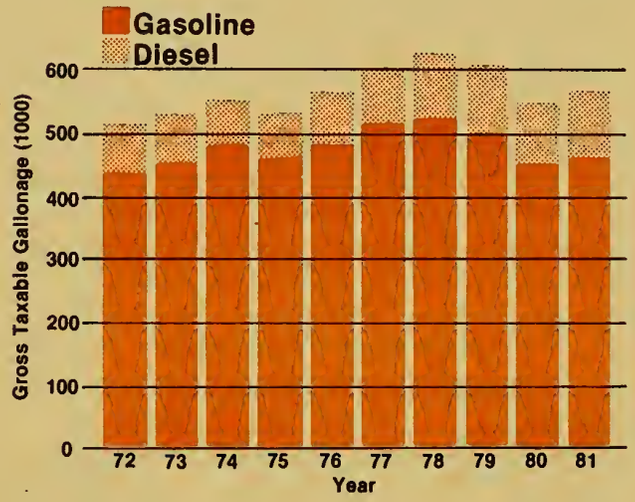


Table 7
Federal Obligation Authority, 1978-1983
(in thousands of dollars)

Fiscal Year	Federal Obligation Authority
1978	$ 74,083
1979	155,145
1980	82,728
1981	87,941
1982	66,128
1983*	66,022

* projected

Figure 9
Montana Motor Fuel — Taxable Gallonage

Table 8
Fuel Tax Receipts, 1975-1983
(in thousands of dollars)

Fiscal Year	Gasoline	Diesel	Total	Percent Change
1975	29,156	6,703	35,859	——
1976	32.723	7,915	40,638	13
1977	34,552	8,787	43,339	7
1978	36,844	9,443	46,287	7
1979	37,603	9,907	47,510	3
1980	39,319	10,788	50,107	5
1981	36,249	11,705	47,954	(4)
1982	36,835	11,697	48,532	1
1983*	36,800	11,600	48,400	(0.3)

*Estimated

Income from gross vehicle weight fees and mineral royalties have risen at a steady rate over the past several years, and this trend is expected to continue through the next biennium.

It should be noted that the effect of these revenue trends meant that for the first time, $20 million of the General Fund support was necessary to keep the Highway Fund solvent during the 1983 biennium.

Highway Program Expenditures

The trend in highway program expenditures has fairly accurately mirrored revenues. Table 9 provides a summary of Department spending since fiscal year 1978. The most dramatic change in Department spending patterns occurred between 1981 and 1982, when spending fell from $204 million to $152 million. This reduction was mainly a result of Department-initiated cost reductions, federal aid reductions, a labor strike, and bad weather during the spring of 1982. (The latter two factors delayed the start of a number of construction projects.) Expenditures in fiscal year 1983 are expected to increase to around $185 million, a level which is still considerably below the amount appropriated for that year.

Of the programs administered by the Department, construction is by far the largest (55 percent of the total in FY 1982), but also the most sensitive to changes in federal spending. The Maintenance program is the second largest (23 percent in 1983) and the one that has grown most consistently over the past several years. The Gross Vehicle Weight program, while a comparatively small program in the Department, has still experienced a significant growth rate during the past few years to accommodate the increased emphasis on enforcement activities.

Figure 10
Montana Highway Program Expenditures, 1978-1985

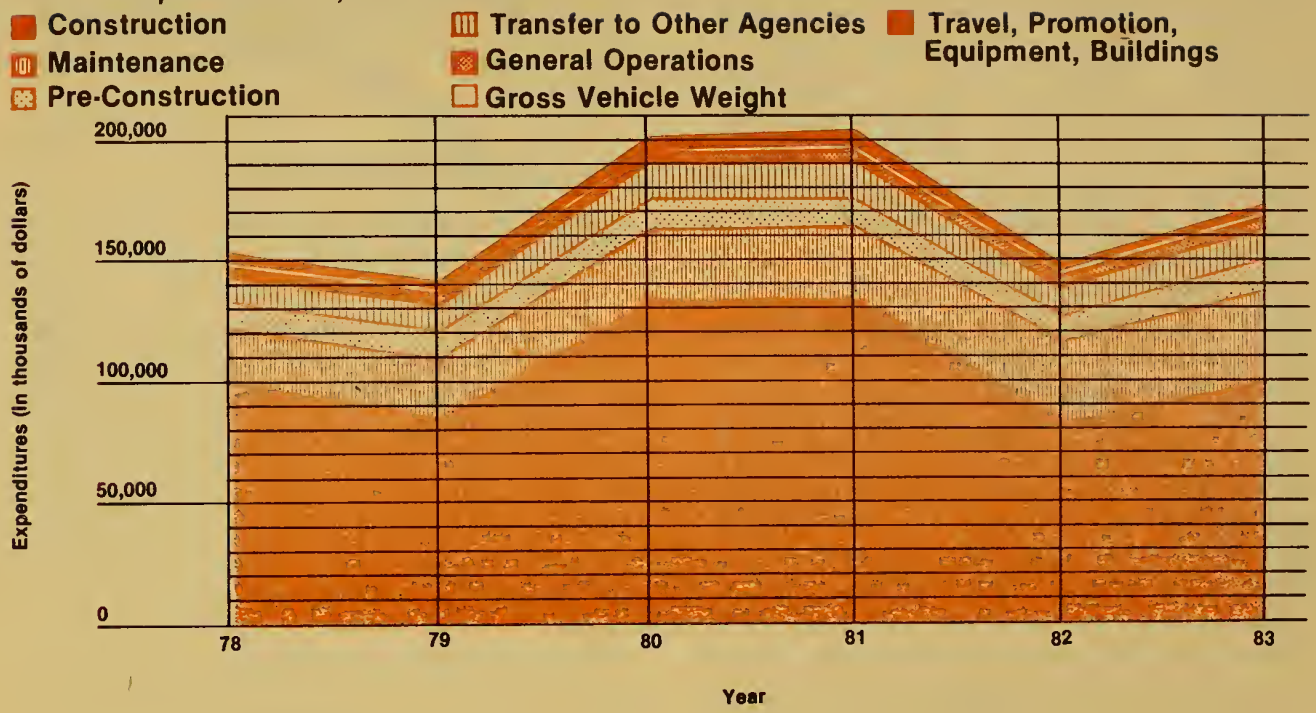


Table 9
Montana Highway Program Expenditures, 1978-1983

Program	1978	1979	1980	1981	1982	1983
General Operations	4,608	5,171	5,332	5,979	5,106	5,402
Gross Vehicle Weight	1,321	1,367	1,549	1,656	2,287	2,737
Construction	100,393	84,181	132,979	133,656	84,367	110,143
Maintenance	23,168	25,390	30,189	30,650	34,387	38,451
Travel Promotion**	636	657	590	609	——	——
Preconstruction	10,157	11,541	12,284	11,383	10,526	12,456
Equipment	2,151	1,160	882	1,644	2,816	2,513
Buildings	668	902	895	2,547	678	1,206
Transfer to Other Agencies	11,181	11,033	15,390	15,926	12,269	12,814
Totals:	154,283	141,402	200,090	204,050	152,436	185,722

* Excludes all revolving funds.

** Transferred to Dept. of Commerce and funded with General Fund.

HIGHWAY NEEDS

For some time now there has been a growing and widespread belief by Montana citizens that the state's highway system is deteriorating faster than it is being repaired and maintained. This feeling has been expressed in many forums — legislative meetings and studies, public hearings, private complaints to the Department of Highways, even in an article in *Newsweek* magazine — and have usually focused on specific stretches of roadway all across the state. Given this general conviction that Montana's Highways are in serious trouble and given the fact that resources available for making improvements to the system are extremely limited, it is essential that the nature and extent of highway needs are understood as completely as possible before new courses are adopted. It is critical that the degree of need be quantified and translated into dollar terms before the new programs are formulated and approved. One of the most important tasks undertaken by the Montana Department of Highways during the past 18 months has thus been the needs analysis which is the subject of this section.

An effort to accurately assess highway needs in Montana is at best a complicated and difficult process. In fact, a highway needs analysis is best viewed as a dynamic process — one that requires periodic refinement and updating. Additionally, such a process must also be based on those assumptions that most accurately reflect policy and professional judgment on resource availability.

This needs assessment, conducted by the Program Development Division, constitutes the first round of a new and ongoing needs analysis process for the state. It requires and will receive refinement, particularly during the next two years, but it provides a base for developing a 10-year highway program for Montana. It reflects the conviction that we live in an era of limits, that tough choices must be made as to where limited highway resources can best be used. It also reflects a new commitment to limited reconstruction and expanded preventative maintenance as more cost-effective ways of utilizing these limited resources.

The 1974 Needs Study

The last needs assessment conducted by the Montana Department of Highways was in 1974. The study was completed by a private consultant and the Department, and was directed at determining the cost of bringing the Federal-Aid primary system up to 1974 design standards. The study indicated that through 1994, 1,494.4 miles would require complete reconstruction at a cost of $446 million. Of the 20-year total, it was estimated that 1,362.1 miles were in need of immediate attention. It was further projected that another 1,400.9 miles would need major widening by 1994, while 1,426.4 miles would need to be resurfaced. The results indicated that a total of $813 million was necessary to meet these standards.

The 1982 analysis differs from that of 1974 in several ways. First of all, the current effort covers the entire Federal-Aid system, not just primary highways. Secondly, a major realignment of the Federal-Aid systems was completed in 1976 which resulted in both the addition and deletion of major sections of roadway from various parts of the overall system. Next, the various improvements as well as wear and deterioration which have occurred on the system in the last eight years make the 1974 study a limited foundation upon which to build. Finally, the effects of inflation on highway construction costs since 1974 have been enormous. Prices in the construction industry have increased over two-and-one-half times since the last needs study was conducted. For those reasons, the 1982 analysis was conducted independently of the earlier needs study.

The 1982 Needs Assessment

The current analysis was completed by staff from both headquarters and field offices of the Department of Highways. It covers the entire Federal-Aid system, including interstate, primary, secondary, urban, and bridges. The general results point to highway problems of extraordinary dimensions.

For example, while Montana's Interstate system is nearly completed, the latest official cost estimate to complete the remaining miles is $154 million. During the last three decades when most of the attention and resources of the Department were focused on interstate construction, Montana's other highway systems did not receive equal attention. The 5,469-mile primary system includes 458 miles which are now classified as critically deficient. The 4,706-mile secondary system has only 2,525 miles which are paved, and of those 1,424 miles are 25 years or older. Most of the urban areas in Montana have identified needs which, in order to correct them, would utilize all of the funds available to them at current funding levels beyond the end of this century. Finally, 219 of the 2,272 bridges on the state highway system qualify for replacement and 943 qualify for rehabilitation under a nationwide bridge evaluation program.

In terms of age, Montana's highway system is really as old as the state itself, but of those roadways that comprise the current primary system, fully half are over 25 years old, with over 25 percent over 40 years old. The Department's 1981 Sufficiency Study found that a fairly direct correlation exists between roadway age and its overall condition. Figure 11 shows the age of the primary

system while Figure 12 indicates the miles of rural primary highway constructed each year between 1934 and 1980.

A look at sufficiency trends since 1972 suggests that the work carried out on Montana's primary system since then has not even allowed the state to hold its own, even though the changes have not been dramatic. Highway sufficiency ratings are determined through the application of a formula developed to provide a quantified condition value for a given section of roadway. Three factors are included in the formula: structural adequacy (up to 50 points), safety (up to 20 points), and hourly service volume (or traffic capacity) (up to 30 points), for a possible total of 100 points. Currently, a section of highway with a sufficiency rating of less than 60 is considered deficient. A section with a sufficiency rating of less than 40 is considered critically deficient. Sufficiency ratings are employed to determine the allocation of construction funds to the financial districts and serve as a valuable tool in the process of analyzing highway needs.

Figure 11
Age or Rural Primary System

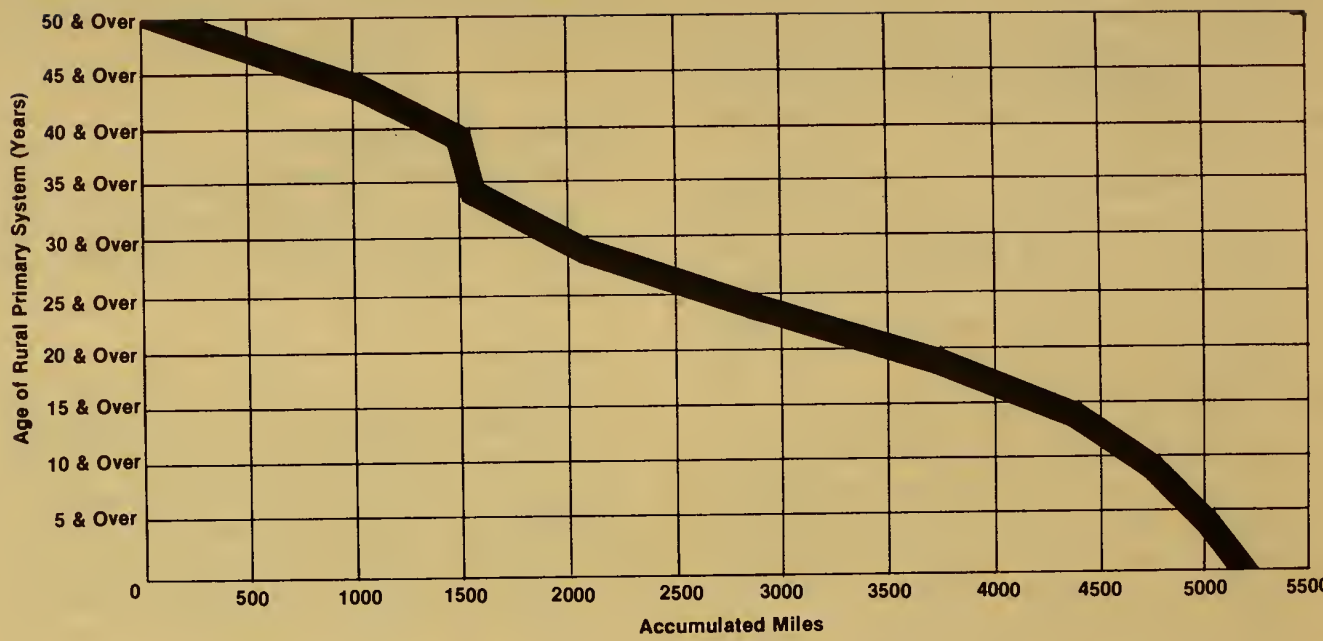


Figure 12
Miles of Rural Primary Constructed

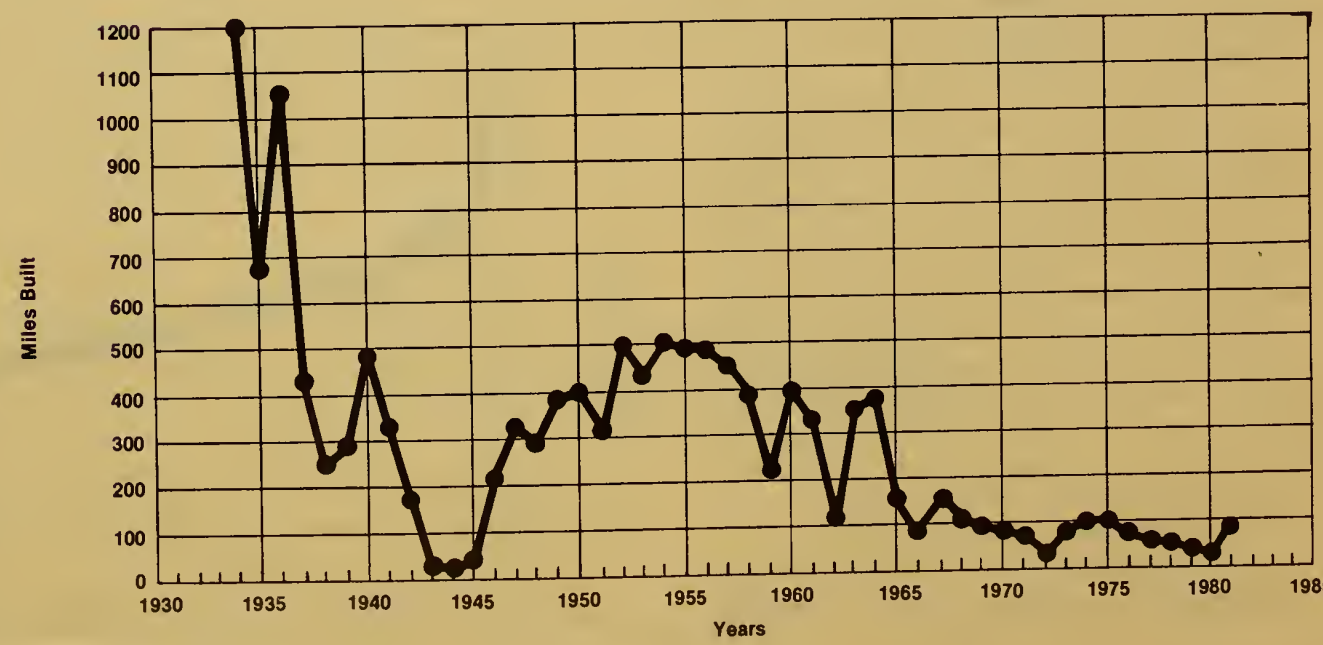


Figure 13 presents adjusted sufficiency ratings for Montana's primary system as of 1981. As indicated earlier, almost half of the system mileage has a rating of less than 60 and is considered deficient. Those sections which are deficient (blue) and critically deficient (red) are indicated on the accompanying state map.

On the resource side, inflation during the last five years has reduced the purchasing power of the 1977 highway construction dollar in 1982 to 61 cents. More fuel efficient vehicles and other travel factors, however, have resulted in fuel consumption falling by 13 percent over the last four years, thus reducing the state fuel tax income to the Department. At the same time, the number of trucks over 80,000 pounds has continued to increase by aproximately two percent per year. The lack of a preventative maintenance program has had the effect of furthering the wear and tear on the state's highways. Highways are designed to meet a specific life expectancy, but without regular and periodic preventative maintenance, that design life will be diminished. Regular preventative maintenance, however, will not only enable a highway to meet its design life, but can actually extend it.

The major task of the 1982 needs assessment, then, was to determine how to quantify Montana's highway needs in dollar terms and in terms that would be both reasonable and prudent. Accordingly, the analytical process moved through two stages. The first was based on full current design standards; the second was based on a modification in the approach to how those standards would be applied in order to achieve a reasonable level of service on major highway systems. It would thus represent a decision not to apply full design standards on each and every mile of all of the state's highway systems.

The needs analysis which follows summarizes the results of both levels of analysis: the improvements needed to bring every route up to full design standards, and the improvements needed to maintain a modified service level in order to produce reasonable levels of highway performance.

Needs Based on Full Design Standards

The following planning constraints were applied to analyze highway needs at the full design standard level:

Interstate

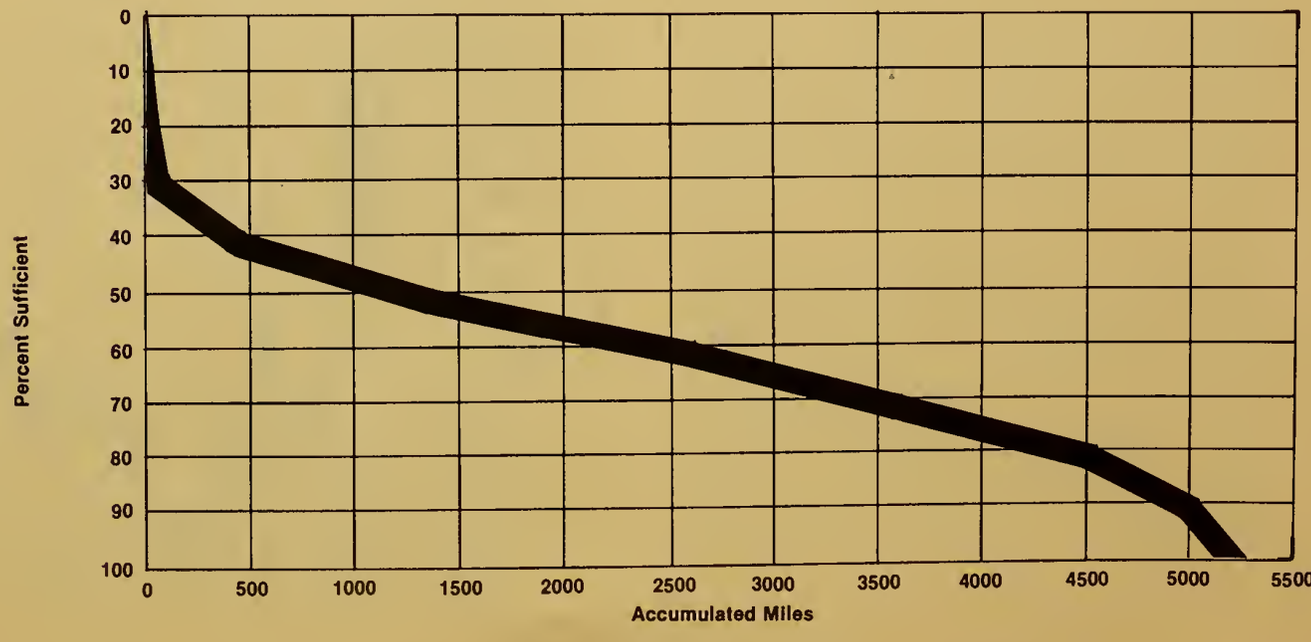
All remaining construction would be accomplished pursuant to federal standards; all reconstruction and repair would be done in accordance with federal I-4R standards. Pavement preservation would be carried out on a cyclic basis, with sealcoats every 7 years and overlays every 14 years, which is standard nationwide. The cost of these activities was estimated to be $298,700 per mile for overlays and $28,400 per mile for sealcoats.

Primary

Sections rated less than or equal to 60 on the sufficiency scale (without accidents) are considered generally deficient and would be candidates for full reconstruction or other major improvements. Accidents were not used in order to eliminate any undue bias.

Sections rated greater than 60 on the sufficiency scale (without accidents) are generally in reasonably good condition and can be maintained in that condition by a planned program of pavement preservation activities in order to obtain the maximum life for which pavement is engineered. As on the interstate system, they would be carried out on a cycle of sealcoats every 7 years and overlays every 14 years. It was further assumed for planning purposes that all reconstruction needs would be met immediately so that all primary mileage would require preventative maintenance. This was calculated to be 390 miles per year for sealcoats and the same

Figure 13
Adjusted Sufficiency Rating on Primary System



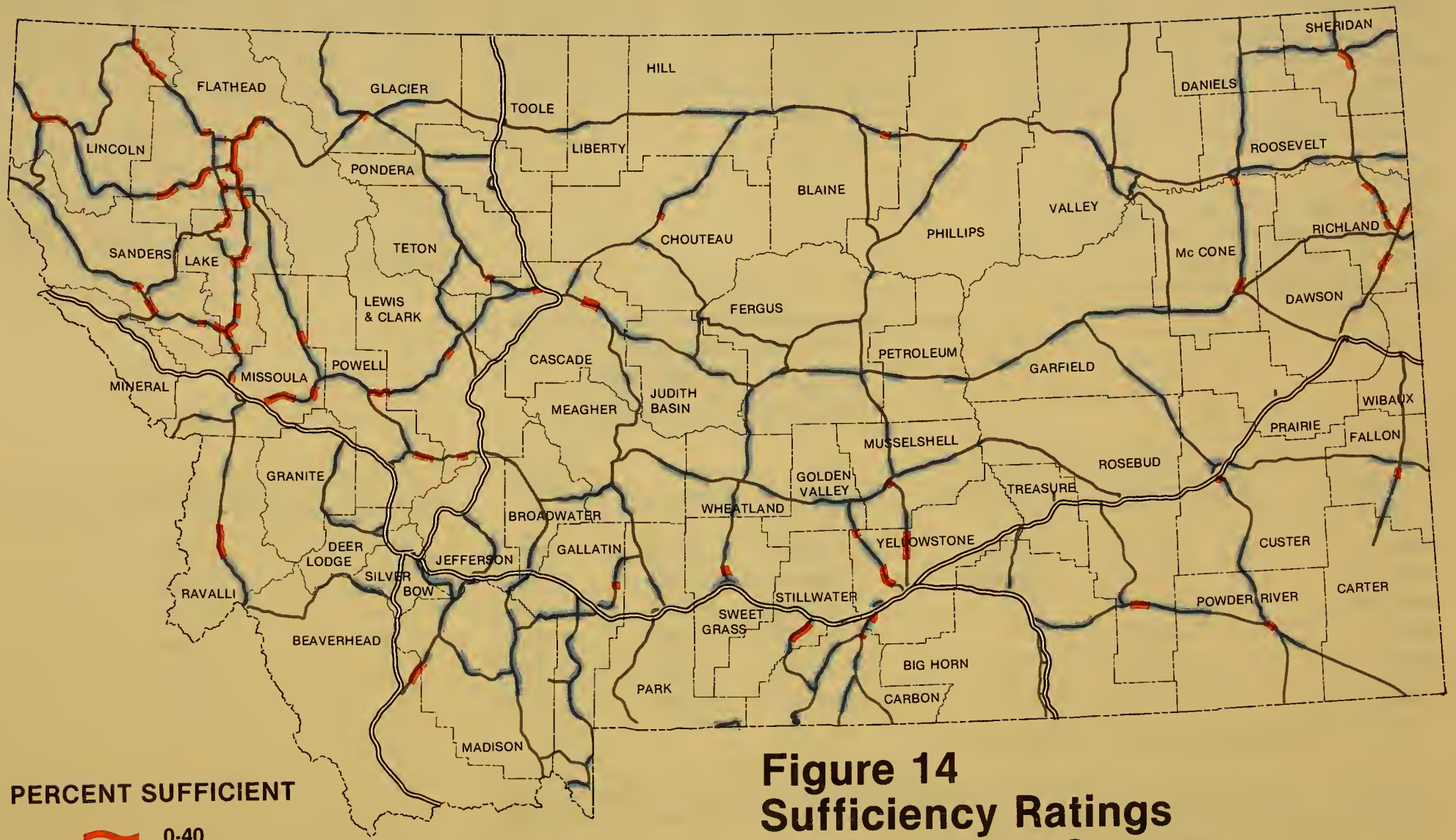


Figure 14
Sufficiency Ratings
Rural Primary System

PERCENT SUFFICIENT

- 0-40
- 41-60
- 61-100

DECEMBER 31, 1981

RED 458 MILES NOW CRITICAL

BLUE 2203 MILES WILL NEED RECONSTRUCTION OR REPAIR WITHIN TEN YEARS

- Interstate
- Primary

mileage annually for overlays. The costs were estimated to be $95,400 per mile for overlays and $9,600 per mile for sealcoats.

The sections with a sufficiency rating of between 40 and 60 are not considered critical. These sections will receive the so-called 3R-type improvements. These include overlay and minor widening. (The 3R program is a federal initiative to emphasize the use of low-cost performance-related improvements as an alternative to reconstruction.)

Secondary

All secondary roads would be improved to full design standards, including paving. Cyclic maintenance needs would be met by the counties, as they are now.

Urban

Urban needs were developed for the total system rather than on a section-by-section basis. This was necessary due to the lack of inventory data pertaining to roadway conditions within defined urban limits. For this same reason, the five urban areas having current transportation plans were used as typical areas in determining urban system needs on a statewide level.

Bridges

A bridge would be rehabilitated or replaced if it were deemed to be either structurally or functionally obsolete. The former means that a structure has developed significant structural deficiencies, while the latter means that though the bridge is structurally sound it is no longer adequate to handle modern traffic demands.

By applying these constraints to highway needs, it was determined that the 10-year cost to improve Montana's highway system to full design standards would be $3,936,629,000. Table 10 shows a cost breakdown by system.

Table 10
Needs Assessment for Montana Highways
10-Year Program
Full Design Standards
(in thousands of dollars)

System	Construction/ Reconstruction[1]	Cyclical Pavement Preservation[2]	Total Needs	Annual Needs	Annual Available Funds[3]	% of Needs Met	Annual Add'l Funds Req'd
Interstate	154,483	319,746	474,229	47,423	34,632	73	12,791
Primary	1,435,192	470,925	1,906,117	190,612	30,379	16	160,233
Secondary	1,177,355	——	1,177,355	117,736	12,492	11	105,244
Urban	223,503	——	223,503	22,350	6,719	30	15,631
Bridges	155,425	——	155,425	15,543	4,634	30	10,909
Total:	3,145,958	790,671	3,936,629	393,664	88,856	23	304,808

[1] One-time construction and/or reconstruction costs

[2] Assumes a cycle of sealcoats on sufficient roadways at seven years, with an overlay at 14 years on the same roadways. Costs for secondary and urban systems are not included because nearly all of these systems are maintained by counties and cities.

[3] Federal obligation authority estimated at $80 million per year

NOTE: ALL CALCULATIONS ARE EXPRESSED IN 1982 DOLLARS: INFLATION FACTORS ARE OMITTED

When this is compared with a 10-year estimate of available funds based on current level state revenues, a federal obligation ceiling of about $80 million per year, and expressed in 1982 dollars, the gap between needs at full design standards and available resources is enormous. Additional funds required over a 10-year period totals $3,348,069,000. Put simply, there is no way that the State of Montana can meet needs of this magnitude. They amount to three times as much money as is currently available from both state and federal sources. Moreover, it is highly doubtful that the state would attempt to fully meet these needs; in many instances, the high level of highway development envisioned is unrealistic. Thus a second, more realistic means of assessing existing needs was sought. Such a level deals with reduced reconstruction and maintenance services on the primary and secondary systems in particular.

Needs Analysis Based on a Modified Level of Service

Obviously, the full design standards gap is far too large to be filled by any reasonable estimate of additional available state and federal funds. Thus a modified service level standard was developed to gain a more realistic appraisal of needs.

This modified level was the critical one. Its utility was complicated by the fact that a small fraction of the highways carries a disproportionately large share of the traffic, much of which is characterized by long trip lengths. These highways serve large urban areas and carry mostly through traffic. For these and other reasons, they are functionally classified as principal arterials. (Functional classification is an expression of the role a route plays in the total network; for an illustration of principal and minor arterials in Montana, see Figure 15). A further classification can be made based on the current sufficiency rating of the highway.

In order to develop a reasonable program, the Department adjusted its needs analysis to conform to these key points. Reconstruction to full design standards needs is an affordable investment on those principal arterials currently in poor condition. Principal arterials in fair to good condition, however, can be maintained with more moderate improvements. Improvements required by the full design standard and the major expenditures they would require on minor arterials and major collectors cannot be supported by vehicle use, importance of the route, or economics. These routes and the fair-to-good principal arterials are assigned to the modified service level category.

All costs were calculated in terms of current dollars and do not include inflation factors. The following assumptions were used in calculating these modified needs.

Interstate

Since little, if any, flexibility exists in design standards, it was assumed that no changes could be made in calculating needs related to completing construction on this system. However, cyclic pavement preservation activities could be stretched out on a longer cycle. Thus 10 and 20 years were used to calculate these needs instead of the 7 and 14 years used in the full design standards level. (Extending this preventative maintenance cycle does involve certain risks; however, pavement not maintained according to the 7- to 14-year cycle can deteriorate more rapidly and possibly require more substantial repair work much earlier than normal.)

Primary

The same 10- to 20-year cycle was used for pavement preservation needs on this system. In this case, however, the mileage in need of some level of reconstruction was subtracted from the total (based on the assumption that it would be covered at one point or another in the 10-year planning period); thus, the mileage which would receive preventative maintenance in the next 10 years would total 3,292, or 165 miles per year to be sealcoated and 165 to be overlayed. For full reconstruction needs, it was determined that only those sections of highway classified as principal arterials and as critically deficient (i.e., with a sufficiency rating of less than 40) would be candidates for full reconstruction. All other sections classified as both principal and minor materials with a sufficiency rating of less than 60 would be eligible for minor widening and/or resurfacing. All other sections rated above 60 would be eligible for pavement preservation activity during the 10-year planning period.

Secondary

Rather than using full design standards to upgrade the entire secondary system, 3R standards would be used. This means that paving would be done only on those sections which are already paved or on gravel-surfaced routes with traffic volumes of 700 vehicles per day or more. Paved sections would be widened to 24 feet if necessary. Gravel sections would be widened to 20 feet if necessary, and regraveled if appropriate.

Because counties are responsible for establishing construction and reconstruction priorities and for maintaining this system, it is important to note that the Department is not proposing to change the way secondary priorities are established. Use of the 3R standards is for analysis purposes only to try and establish the needs of the system with an assumed modified service level.

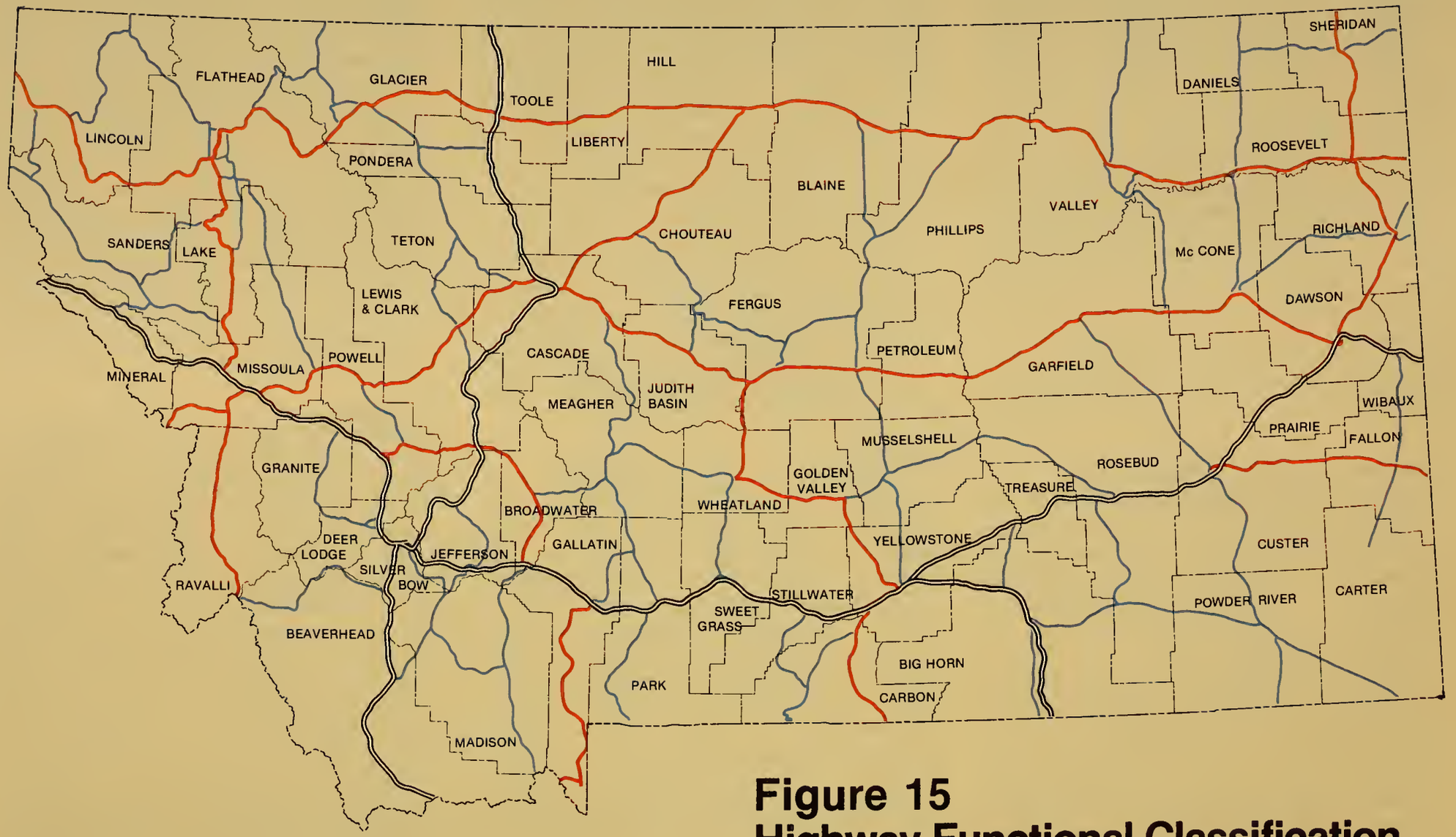


Figure 15
Highway Functional Classification

Interstate
Principal Arterials
Minor Arterials

Urban

Since needs on the urban system are usually developed through a formal planning process at the local level, no modifications were made in the Department's calculations.

Bridges

The major modification in this area was only to replace those structures which are eligible for replacement under the current federal bridge replacement standards.

Application of these modified standards results in a considerably lower level of needs. The total cost of meeting these needs over the next 10 years is $1,767,302,000. Table 11 shows these needs and compares them with available resources by system. When these needs are compared with projected available revenues, the additional funds needed over the 10 years amount to $878,751,000 on the entire highway network, or $87.9 million per year. Thus the state is not in a position to be able to afford even the modified service level needs at current funding levels.

Table 11
Needs Assessment for Montana Highways
10-Year Program
Modified Service Level
(in thousands of dollars)

System	Construction/ Reconstruction[1]	Cyclical Pavement Preservation[2]	Total Needs	Annual Needs	Annual Available Funds[3]	% of Needs Met	Annual Add'l Funds Req'd
Interstate	154,483	206,885	361,368	36,137	34,632	96	1,505
Primary	702,072	199,238	901,310	90,131	30,379	34	59,752
Secondary	193,898	——	193,898	19,390	12,492	64	6,899
Urban	223,503	——	223,503	22,350	6,719	30	15,631
Bridges	87,223	——	87,223	8,722	4,634	54	4,088
Total:	1,361,179	406,123	1,767,302	176,730	88,856	50	87,875

[1] One-time construction and/or reconstruction costs

[2] Pavement preservation is based on a cycle of sealcoats every 10 years and overlays every 20 years

[3] Federal obligation authority estimated at $80 million per year

NOTE: ALL CALCULATIONS ARE EXPRESSED IN 1982 DOLLARS; INFLATION FACTORS ARE OMITTED

HIGHWAY PROGRAM MANAGEMENT

Given the reality of increasingly limited resources and overwhelming needs on Montana's highway system, the Department of Highways has made a concerted effort during the past 18 months to better equip itself to handle its responsibilities. This effort has been concentrated in the area of management changes designed to improve productivity, resource utilization, and overall effectiveness. While many of these changes are still in the implementation phase, the net effect to date has been substantial cost savings and operating improvements. These changes were motivated by the Department's belief in the need to make the best possible use of the dollars we currently have available — a most important objective for the Highway Department during the past two years. A number of examples of these changes are described below.

Reorganization

In an effort to streamline communications and clarify lines of authority, the Department was reorganized in 1982. The most significant changes include the creation of five field districts to oversee the 11 area offices, with a single District Engineer responsible for all highway operations for that particular district. At the headquarters level, a Program Development Division was created for the purpose of more effectively programming federal and state dollars for projects which best meet Department policies and priorities. The effect of these modifications should be to create a more efficient and responsible organization at both the field and headquarters levels by reducing the number of positions necessary to accomplish the Department's program objectives.

Management Systems

The forty-seventh Legislature mandated that the Department develop and implement a number of management systems which would provide both the Department and the Legislature with better information in order to facilitate improved management and resource allocation decisions. With the aid of a management consulting firm, the Department determined the level of need for each of the systems and the most expedient approach to its development and implementation. For all systems, the development process has been largely completed, with the implementation now well underway. The pertinent management systems cover the following areas:

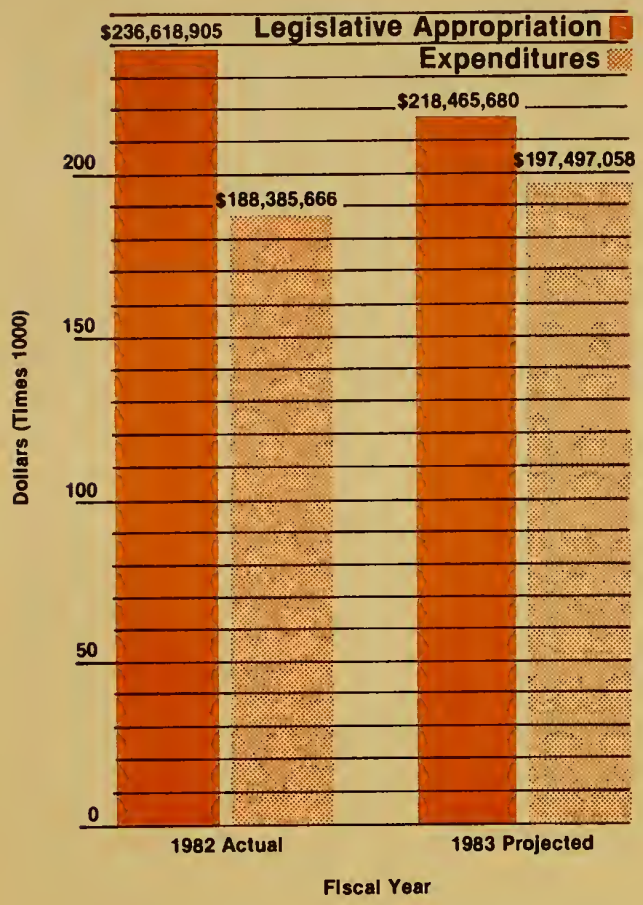
* maintenance
* construction
* preconstruction
* project priority
* equipment
* pavement management
* cash forecasting

These systems are currently scheduled to be fully operational by January 1, 1985, and will comprise excellent tools for more efficiently programming and completing the work necessary for an improved approach to constructing, reconstructing, and maintaining Montana's highways. Specifically, they will provide a solid basis for measuring Department performance, for budgeting based on work to be accomplished rather than history, and for developing activity workplans down to the individual employee level so as to create a more productive work situation.

Cost Savings

Partly as a result of reductions in federal highway funds, but also in an effort to reduce state highway program costs, a number of cost savings measures have been implemented during the 1982-83 biennium, including staff reductions, maintenance cost reductions, increased levels of project closeouts, and reduced non-agreement and overrun projects. In fact, some 41 cost reduction measures were implemented in the last 18 months which could save the department up to $5 million per year. They range from eliminating one FTE in the department's Mail and File Unit by using data processing staff for backup support ($13,650 saved) to having department personnel install truck boxes and hydraulic components on new vehicles rather than purchasing the units preassembled ($138,000 saved). By reducing the scope of work on selected construction projects, to cite another example, it is estimated that $1,000,000 at least per year will be saved. It is important to note that some of the cost savings are being put back to work on Montana's highways. Sealcoating of about 20 miles, several overlays, and painting of 30 bridges are examples of work that would not have been completed without the cost reduction program. Overall, the total effect of these measures along with federal-aid cutbacks was to reduce actual expenditures in Fiscal Year 1982 by $48.2 million and in fiscal year 1983 by an estimated $20.5 million under what the 1981 Legislature appropriated (See Figure 16).

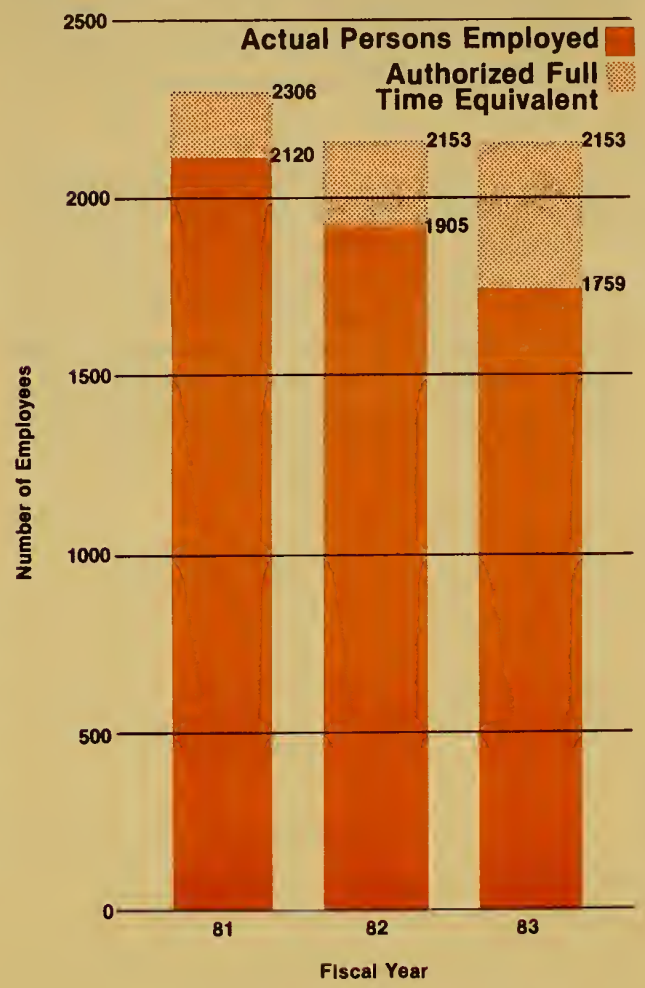
Figure 16
Budget vs. Expenditure Levels for 1983 Biennium



Staff Reductions

To compensate for reduced federal funding levels and bring about more operating effectiveness in the department, significant employee reductions were necessary to assure that the Department was not overstaffed. As a result, the staffing level in the Department for the new biennium is expected to be 1,762 positions. This compares with the 2,153 authorized in the 1981 Legislative budget for the 1983 biennium. Figure 17 provides an analysis for Department personnel from 1981 through 1983.

Figure 17
Department of Highways Employees



Reduced Federal-Aid Non-Agreement and Overrun Projects

These types of projects have typically tied up millions of dollars of state highway program funds for extended periods of time, losing interest on state dollars that otherwise could have been invested. As a result of a vigorous management effort during the current biennium, the funds involved in these areas were reduced from $9 million in 1980 to $500,000 in 1982 — the lowest level ever on record.

One-Time Project Close-Outs

A $12 million increase in obligation authority resulted from a concerted effort to close out projects much earlier than had been the previous practice. In the past, projects would remain open until all of the activity was completed. Since active jobs are often programmed for more dollars than are actually required for completion, considerable sums have been tied up awaiting project closure. By closing out these projects within six months after the major work is completed, the project's obligation authority can be made available for new projects, resulting in a much faster cycle of project startups and completions. The change in close-out policy last year enabled the Department to accelerate its letting of the Sloway-Superior project on I-90 which will close a critical gap between Missoula and the Idaho border, a $12 million dollar job.

Personnel Management

In an effort to improve employee productivity, a rigorous system of employee performance appraisals has been instituted. In addition, in order to improve overall staff ability to handle an increase in different activities, greater emphasis has been placed on training remaining staff to help compensate for the reduction in forces. Because of these changes, hiring, firing and promotion are now based on performance.

Project Selection System

In the past, project selection was at best a highly arbitrary process. Projects were selected for work with little regard for priorities, cost analysis, or even available funding. Frequently they were scheduled for letting only to be withdrawn at the last minute due to inadequate funding or other limiting factors. The result was that the Department's credibility was badly damaged. This over-scheduling was interpreted by citizens as broken promises and by others as

poor management. In order to correct this situation, a new project selection system is being developed which will provide a more logical and systematic basis for selecting projects to be engineered and to be let. In the future, the key criteria will be a project's relative priority, a benefit-cost analysis, and a realistic assessment of available funds.

Value Engineering

In an effort to reduce project costs, a number of value engineering projects are underway. This process examines both general engineering procedures and specific projects to determine what cost-saving measures can be adopted so as to produce more mileage for the highway dollar. In addition, several cost-reduction measures related to engineering practices and standards are being studied, including reducing the width of bridges, reducing the width of roadways, and, as noted earlier, shifting emphasis from new construction to overlay-and-widen projects. These efforts will result in substantial cost savings: a narrower bridge design will save up to $1.5 million on the structures currently being engineered; using overlay and widening rather than full reconstruction will save on the average about $400,000 per mile.

Public Services

The Department has taken many steps to make its people and decision processes more accessible to the public. Improved response time to mail and telephone inquiries has been achieved. Field personnel are involved in a program designed to increase their interactions with the communities they serve. A program has been launched that should be in place next summer to improve public rest area maintenance. These and other public access measures are bringing the Department closer to its constituents.

Vehicle Management

Steps have also been taken by the Department to eliminate abuse of public vehicle use by employees. The number of vehicles owned by the Department has been reduced while policies have been implemented which restrict employees' use of vehicles.

The problems afflicting Montana's highways will not and cannot be solved merely through cost savings and improved management, although such concerns will continue to receive the highest priority. Clearly something more is necessary; more funds will have to be provided if Montana's highways are to be significantly improved.

BUILD MONTANA: THE HIGHWAY PROGRAM

The largest percentage of unmet needs resulting from the needs analysis is on the urban system, with the second largest being on the primary system. The urban system consists of only a little more than 300 miles, but is extremely expensive to reconstruct. The primary system contains the main transportation routes and linkages for the state as a whole and is the fundamental responsibility of the Department of Highways. This system receives the greatest use (in terms of vehicle miles travelled) of all components of the state's highway network; it is the key to a flourishing state economy because of its critical role in moving goods to and between markets. It also has been badly neglected for the past several years. Therefore, the highest priority has been placed on meeting primary needs wherever and whenever possible.

The needs of all Montana's highway systems substantially exceed currently available resources, even using modified programming criteria. But this is most significantly the case on the primary system. To correct these problems will require a substantial infusion of new funds over at least the next 10 years.

As for the other systems, more and more federal funds have been made available over the past few years for interstate rehabilitation; this trend is expected to continue. On the remaining Federal-aid systems (secondary, urban and bridge replacement) it appears that little more can be done than to match available federal funds on an annual basis. This leaves a shortfall in terms of unmet needs, but it is one that is more easily managed than is the case of the primary system.

The highway program being proposed for the 1984-85 biennium is actually a first step in a 10-year effort to correct most of the serious deficiencies on the state's primary system, to preserve the integrity of those road section which currently meet sufficiency standards and to complete the interstate system in Montana. It is based both on the policy of placing the greatest emphasis on reconstruction and preventative maintenance and on the results of the needs assessment discussed previously. It will result in more miles of Montana highways being treated on an annual basis than ever before in the state's history.

Specifically, the total program incorporates the following key elements;

- A federally-assisted program which will maintain current level activities on all Federal-aid highway systems in the state.
- A state-financed reconstruction program which will substantially improve the quality of Montana's primary highways over the next 10 years.
- An advanced interstate construction and repair schedule for closing most of the gaps remaining in the system.

Program Objectives

1. The highway program must be changed to less emphasis on new construction and more on preserving the existing investment in the state's highway system by focussing efforts on pavement preservation and reconstruction.

2. The State Highway Fund must remain solvent, which means that either new state revenue must be found to at least partially offset declining user fee revenues, or that existing programs must be curtailed.

3. A substantial increase in emphasis needs to be placed on preventative maintenance in order to preserve the pavement quality on those sections which are still above standard.

4. Those sections on the principal arterials which are critically deficient need to be reconstructed.

5. The remaining gaps in the interstate system need to be closed as quickly as possible.

6. To better mitigate the damage inflicted on roadways by heavy vehicles, a more aggressive gross vehicle weight enforcement effort needs to be carried out. This will be accomplished with more enforcement personnel and an enforcement strategy relying on more roving and concentrating enforcement activities.

Program Assumptions

1. Federal Highway apportionments during the next biennium will be in the neighborhood of $75 million in FY 1984 and $80 million in FY 1985 and beyond.

2. User fees at the state level will be increased.

3. The interstate apportionment through 1990 will be approximately $126 million, or $18 million per year.

4. Additional state funding will be made available on a 10-year basis. Given the fact that the Department obligates construction contracts which can result in actual payments as much as three to five years later, there must be assurances of a certain level of spending over an extended period of time.

5. Additional revenues are necessary to maintain a current level program over the next 10 years.

6. A current level program over the next 10 years will result in further deterioration of our existing roadways, with increasing mileage becoming deficient or critically deficient. It would also result in an interstate completion date of the mid-1990s, and little progress towards an effective preventative maintenance program.

Program Proposals

The Department of Highways is proposing to undertake a comprehensive program which will significantly move the state toward meeting the above objectives over the next 10 years. It consists of a reconstruction program which would rely exclusively on state funds at a level of $40 million per year, and an advanced interstate program designed to close most of the major gaps in the system using both a portion of the Highway Earmarked Revenue Account fund balance and some $50 million from the sale of bonds (which would be retired over a five- to 7-year schedule with federal highway funds.) It also involves a more aggressive Gross Vehicle Weight enforcement program as a means to reduce undue wear on the state's roadways.

The request for $40 million per year for the Reconstruction Trust Program is based on several factors. First, it represents a program level which the Department can reasonably handle — at least during the next few years. Secondly, it is believed that as efficiencies are realized from the various management improvements described above — especially the value engineering efforts — the $40 million per year may well be worth a good deal more than that in real dollars. And finally, the figure is in keeping with the recommendations of the Governor's Transportation Advisory Council (GTAC) and the Legislative Joint Subcommittee on Highways.

The specifics of the Governor's program are as follows:

The Reconstruction Trust Program

The reconstruction program would use state funds to significantly reverse the decline in the quality of the state's highways, especially those on the primary system. With fully 50 percent of that system currently considered to be substandard, the need for a substantial reconstruction and pavement preservation program over the next 10 years is absolutely critical and has been widely recognized.

This program would mean that more miles of primary highway in Montana would be treated on a regular basis than ever before in the history of the system.

Funds in this case would be used for three basic purposes: full reconstruction, rehabilitation and preventative maintenance. All major systems would benefit, although the greatest emphasis would be placed on the primary system. Funds would be allocated on the basis of statewide priorities and not according to the financial district formula. Of the $40 million per year being requested, $30 million would be used for reconstruction projects, $8 million would be used for preventative maintenance, and $2 million would be used for engineering.

The impact of investing an additional $40 million per year in Montana's highway system would be to cover about two-thirds of these needs which would otherwise be unmet. Accordingly, over a 10-year period 155 miles of critically deficient principal arterial would be fully reconstructed, 1,444 miles on the entire system would be repaved and/or widened, and 1,650 miles would be resurfaced. Cyclic pavement preservation needs on the Interstate system which are not eligible for federal funds are also included.

Reconstruction Trust Program Funding

Funds would be made available from a new revenue account, the Reconstruction Trust Fund (RTF). Sources of revenue to the RTF would be as follows:

Gasoline tax (additional 3¢ increase)[1]	11,700,000
Diesel tax (additional 4¢ increase)	4,400,000
G.V.W. fees (increase by 35%)	4,500,000
Highway Patrol (fund with General Fund revenues)	5,000,000
Coal Severance Tax Revenues[2]	15,000,000
Total:	$40,600,000

[1] This assumes that the 1¢ increase levied in 1981 which is due to lapse at the end of fiscal 1983 would be made permanent. The Governor will propose total fuel tax increases of 3½¢ for gasoline and 4½¢ for diesel with ½¢ from both earmarked for local government use.

[2] These revenues would be phased in beginning in FY 1986.

The Department's proposal would provide an annual funding level and should be established on a 10-year basis. For comparison purposes, GTAC and the Subcommittee on Highways proposed similar increases in funding from similar sources.

The Advanced Interstate Program

To accelerate interstate construction in order to close major gaps in the system, the Advanced Construction — Interstate (ACI) Program will be used. This program enables a state to advance future interstate funding to speed construction on the system. The state can then convert the funds used for ACI purposes by using future federal interstate dollars. This would enable the state to be reimbursed by the federal government. In

Montana's case, the state currently expects to receive $126 million in interstate apportionments through 1990 (this amounts to about $18 million per year). Some 44.2 miles of existing four-lane and 9.2 miles of two-lane gaps on the system could be closed considerably ahead of the current schedule. This would leave only two gaps on the entire system: some 6.5 miles on I-90 south of Lodge Grass and about one mile of I-15 south of Dillon (because of unresolved slide difficulties). It is expected that both projects could be completed during the 1987 biennium using regular interstate construction funds.

Seven projects could be accelerated to the extent that five could be let to bid during fiscal year 1984, and the remaining projects could be let in 1985.

cash balance, the regular interstate apportionment, and proceeds from the sale of $50 million worth of bonds. Retirement of the bonds would be over a five- to 7-year period using additional regular federal interstate spending authority during those years. Around $11 million per year would be used for this purpose, leaving about $7 million per year available for regular interstate construction projects.

The first preference for obtaining the additional funds needed for this program was from the projected General Fund surplus. If it were available, it would be an ideal source. But since it became apparent that because of the continuing poor national economic situation, the surplus will not be adequate to fund the projects, other sources were investigated, including the Coal Trust Fund and the

Project	Route	Cost (Millions)	Current Letting Date	Accelerated Letting Date (FY)
St. Regis — E & W	I-90	6.0	FY 1985	1984
Wyoming Line — N	I-90	11.0	FY 1985	1984
Bernice — Basin	I-15	17.5	FY 1986	1984
Elk Park — N	I-15	7.9	FY 1986	1984
Bernice — S	I-15	10.8	FY 1987	1984
Springdale — W	I-90	9.0	FY 1987	1985
Lodge Grass — S*	I-90	15.0	FY 1987	1985
Total Cost:		$77.2		

* The letting of this project is dependent on resolving a long-standing right of way problem.

This program would have the effect of accelerating the work on all of the above projects. The revised schedule would thus save significant amounts of time on the overall interstate construction schedule.

ACI Program Funding

Funding for the above projects would come from three sources: Highway Fund sale of bonds. The Coal Trust was suggested by some, but rejected because it is likely that the principal can now earn more in interest through investment than bonding would cost. Thus bonding is currently the preferred approach. It is likely that interest rates will be favorable and arbitrage earning could help offset debt service costs. Moreover, the federal government will reimburse the state for interest costs.

Program Benefits

A number of tangible benefits would result from these various program initiatives.

- Montana's primary highway system would receive more regular attention than ever before, which would halt the advancing deterioration from which it is currently suffering.
- Almost all of the key gaps remaining in the Interstate System could be closed considerably ahead of the current schedule.
- The projects could be initiated very rapidly during the next biennium which could result in an additional $117 million in construction contracts being obligated in the 1985 biennium.
- By accelerating the interstate construction schedule, considerable savings could be realized by avoiding inflation in future construction costs.
- A substantial boost in new jobs would result — jobs located in several different areas of the state. With employment in the construction industry down almost 20 percent since 1978, the 1,000 or so direct new jobs which would result from this program along with the hundreds of secondary jobs created with subcontractors, concrete, asphalt and steel manufacturers, other materials suppliers, and service vendors, would be highly significant.
- Significant safety benefits would also occur in reduced accidents and fatalities since the roadways in question would be open to traffic much sooner.

Gross Vehicle Weight Program

In order to bring about more aggressive enforcement of weight and dimension laws on Montana's highways, a modified GVW enforcement strategy has been developed. It places increased reliance on rover scales and concentrated enforcement activity which when paired with improved operation

of the existing permanent scale stations, should result in much more extensive coverage of state highways. Eight new enforcement officers will be requested to implement this strategy. In addition, an increase in overweight fines of 300 percent is being proposed to further deter violators.

If approved, these measures should result in more stringent compliance with existing statutes which in turn should result in less stress on Montana's highways.

The 1984-85 Highway Budget

The Department of Highways' budget request for the 1985 biennium will reflect the various cost reduction measures. As a result, the proposed current level funding package will be less than the levels approved by the Forty-seventh Legislture for the 1983 biennium. However, if the Reconstruction Trust and Advanced Interstate programs are approved, they will require both increased dollars and FTEs. Specific details will, of course, be a part of the Executive Budget and will be discussed in an addendum to this document to be released later.

The 1984-85 Highway Program

The following project listing is designed to present the current level, reconstruction trust, and ACI program initiatives in specific project terms for each of the two fiscal years in the 1984-85 biennium. They are displayed according to financial district and type of project.

The projects listed here were not always selected in accordance with the criteria used in the modified service level needs analysis. This is because of the difficulty involved in abruptly implementing a change in direction. Thus, several projects were selected for full reconstruction because they are ready, because they rank high on the old priority list, because commitments had been made to local area residents, and because significant amounts of money had already been spent on them. During the next biennium, the final implementation of the various management systems and the opportunity to reorder department project priorities in keeping with the new policies proposed here will result in a project list that is more completely in conformance with those policies.

In the meantime, the following projects are still significant to the areas in which they are located and to the state as a whole. They are displayed according to financial district and type of project.

Finally, it is important to note that the following project lists may change if federal or state funding levels change or if unexpected right-of-way or other problems occur.

The 1984-85 Highway Program

Project Lists and locations

Table 12
Project List
Financial District 1

No.	System Desig.	Route No.	Project Location	Letting Date (FY)			Scope of Work
CURRENT LEVEL FUNDING:							
1.	Pri.	US 2	Libby — Troy	1984	—	$ 75,000	**Slide Correction** to remove unstable material threatening roadway.
2.	Pri	US 2	Columbia Falls E & W	1984	4.2	5,880,000	**Reconstruction** on existing alignment replacing narrow 2-lane with a 4-lane section. Existing roadway cannot safely handle present and future volumes of traffic.
3.	Pri.	US 93	Whitefish W & S	1985	6.0	750,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
4.	Pri.	MT 35	E. Shore of Flathead Lake	1985	3.3	500,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
5.	Pri.	US 93	Polson NW	1985	6.2	750,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
6.	Sec.	S 212	Moiese S	1985	1.8	1,000,000	**Reconstruction** on existing alignment replacing a narrow 18-foot-wide road that is in very poor condition.
RECONSTRUCTION TRUST FUND (RTF):							
7.	Pri.	US 2	Coram — West Glacier	1984	5.1	5,800,000	**Reconstruction** on existing alignment. New 4-lane replacing congested, narrow 2-lane.
8.	Pri.	US 2	Hungry Horse — Coram	1985	6.0	5,700,000	**Reconstruction** on existing alignment. New 4-lane replacing congested, narrow 2-lane.
9.	Pri.	US 93	Elmo — Rollins	1985	5.5	4,300,000	**Reconstruction** on existing alignment providing a wider 2-lane and replacing the narrow, deteriorated 2-lane.
★	Pri.	US 2	Idaho Line — Kalispell	1984	13.7	164,000	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	US 93	Missoula — Ronan				
★	Pri.	MT 83	Bigfork — Missoula Co. Line	1985	10.0	120,000	

★ Pavement preservation projects not shown on map

FIGURE 18
HIGHWAY PROGRAM: F.D. 1

Legend

Interstate
Primary
Secondary
Financial District Boundary

3 — Current Level Funding

5 — Reconstruction Trust Fund

Table 13
Project List
Financial District 2

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Pri.	US 2	Two Medicine Bridge	1985	—	$ 4,025,000	**New Bridge** to replace bridge threatened by landslide.
2.	Pri.	US 2	Shelby W	1985	7.0	840,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
3.	Pri.	US 2	Shelby E	1985	6.8	816,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
4.	Pri.	US 87	Box Elder — Havre	1985	13.5	2,700,000	**Widen and Repave** existing roadway in an effort to increase the safety and reduce the high accident rate.
5.	Pri.	US 87	US 2 S of Havre	1985	1.8	364,000	**Resurface** existing pavement in an effort to reduce high maintenance costs and the hazard to vehicles.
6.	Sec.	S 233	North of Havre (St. Joe Road)	1984	6.0	900,000	**Resurface** an existing graveled roadway to provided a paved surface which will reduce maintenance and improve safety conditions.
7.	Urb.	S 232	BN Overpass in Havre	1984	—	2,000,000	**Structure Rehabilitation** to repair and widen existing bridge.
RECONSTRUCTION TRUST FUND (RTF):							
8.	Sec.	S 232	Havre NW	1984	43.0	500,000	**Sealcoat** to exclude water and provide skid-resistant surface.
9.	Pri.	US 2	Two Medicine Bridge E & W	1985	3.6	3,000,000	**Reconstruction** on existing alignment providing a wider 2-lane and replacing the existing 2-lane.
★	Int.	I-15	S of Sweetgrass	1984	16.0	234,000	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	US 2	Chester — Malta				
★	Pri.	MT 66	Hays — Harlem	1985	40.0	480,000	

★ Pavement preservation projects not shown on map

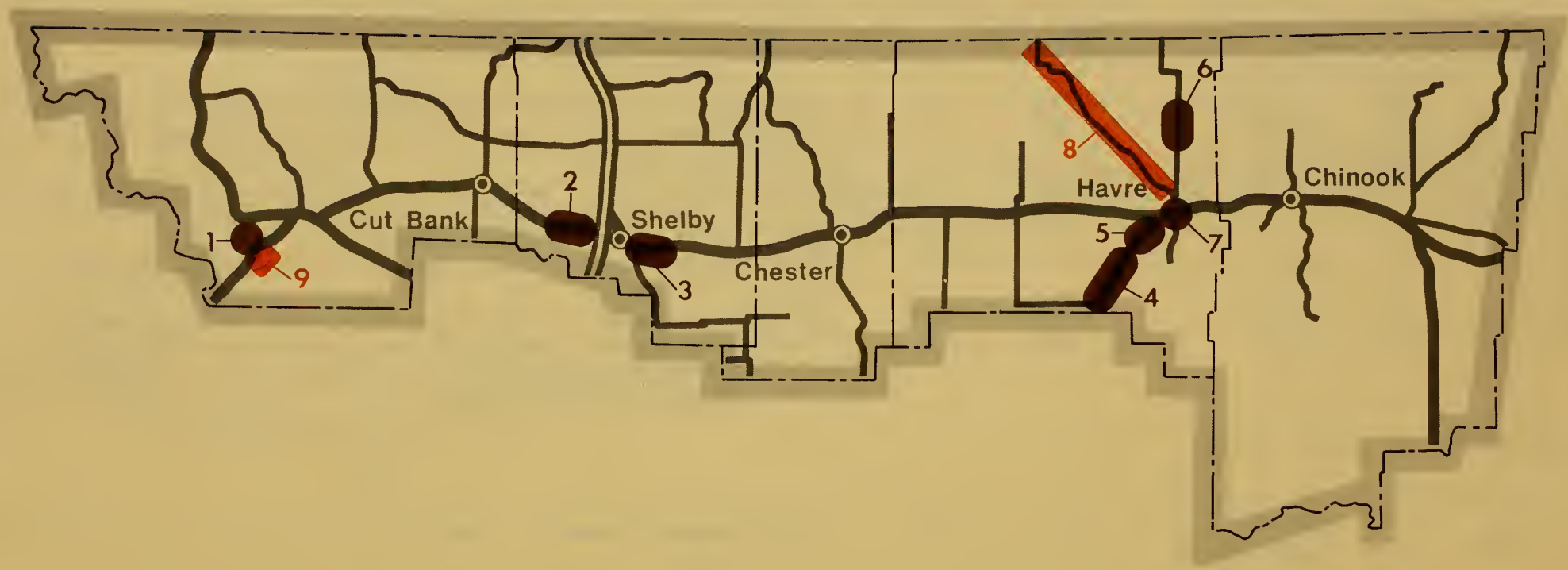


FIGURE 19
HIGHWAY PROGRAM: F.D. 2

Legend

- Interstate
- Primary
- Secondary
- Financial District Boundary
- 3 — Current Level Funding
- 5 — Reconstruction Trust Fund

Table 14
Project List
Financial District 3

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Pri.	MT 5	E of Flaxville	1984	0.8	$ 400,000	**Reconstruct** roadway to eliminate sharp reverse curves at railroad crossing.
2.	Pri.	US 2	Bainville W	1984	8.2	1,476,000	**Resurface** existing pavement restoring the structural integrity and extending the service life.
3.	Pri.	MT 16	Antelope N & S	1985	6.1	4,000,000	**Reconstruction** on existing alignment replacing a narrow 2-lane road constructed in 1933 with a wider 2-lane that completes a gap in width continuity contributing to a safer traffic movement.
4.	Pri.	MT 16	Culbertson N	1985	7.1	1,278,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
5.	Sec.	S 242	Loring N	1985	3.6	1,000,000	**Reconstruction** on existing alignment providing a wider paved highway.
6.	Sec.	S 344	Froid W	1985	7.5	1,732,000	**Reconstruction** on existing alignment providing a wider paved highway and completing the paving of this route. Maintenance costs will be reduced and safety conditions will improve.
RECONSTRUCTION TRUST FUND (RTF):							
★	Pri.	MT 13	Wolf Point — Canadian Line	1984	82.0	984,000	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	MT 16	Scobey-Plentywood — Culbertson				
★	Pri.	US 191	Malta — Fergus Co. Line	1985	96.0	1,152,000	
★	Pri.	US 191	Glasgow — Flowing Wells				
★	Pri.	US 2	Malta — Culbertson				

★ Pavement preservation projects not shown on map

FIGURE 20
HIGHWAY PROGRAM: F.D. 3

Legend

- Interstate
- Primary
- Secondary
- Financial District Boundary

3— Current Level Funding

Table 15
Project List
Financial District 4

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Int.	I-94	Dawson Co. Line E	1985	12.6	$ 3,600,000	**Resurface** existing pavement to restore structural integrity and extend the service life.
2.	Pri.	MT 16	Savage — Crane	1984	—	200,000	**New Bridge** to replace timber bridge which is failing.
3.	Pri.	MT 200	Sidney NE	1985	5.0	4,000,000	**Reconstruction** on existing alignment replacing a deteriorating portion of highway between Sidney and Fairview.
4.	Sec.	S 469	Missouri R. Bridge near Snowden	1984	—	2,500,000	**Bridge Replacement** to remove traffic from existing railroad bridge. (Part in FD #3) (Joint project with North Dakota)
RECONSTRUCTION TRUST FUND (RTF):							
5.	Pri.	MT 16	Savage — Crane	1985	9.0	5,200,000	**Reconstruction** on existing alignment replacing a narrow 2-lane road with a new wider 2-lane that completes a gap in width continuity contributing to a safer movement of traffic.
6.	Pri.	MT 200	Fairview SW	1985	6.7	4,500,000	**Reconstruction** on existing alignment replacing congested narrow 2-lane.
★	Pri.	MT 200	Circle — Garfield Co. Line	1984	10.0	120,000	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	MT 7	Wibaux — Fallon Co. Line	1985	65.0	780,000	
★	Pri.	MT 200	Glendive — Circle				
★	Pri.	MT 13	Circle — Wolf Point				

★ Pavement Preservation projects not shown on map

FIGURE 21
HIGHWAY PROGRAM: F.D. 4

Legend

Interstate
Primary
Secondary
Financial District Boundary

3 — Current Level Funding

5 — Reconstruction Trust Fund

Table 16
Project List
Financial District 5

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Pri.	MT 200	Five Miles E of Lewistown — E	1984	7.5	$2,660,000	**Widen and Repave** existing roadway extending the service life.
2.	Pri.	MT 200	Grass Range W	1985	6.0	500,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
3.	Pri.	MT 200	Moore — Lewistown	1985	14.0	1,000,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
4.	Sec.	S 245	Jordan NW	1984	14.3	1,000,000	**Resurface** existing 6.3-mile paved surface which is showing signs of distress and a potential for severe roadway breakup. The remaining 8 miles will be regravelled.
5.	Sec.	S 426	Hanover Road	1985	3.8	567,000	**Resurface** with gravel and widen slightly between Kolin and Hanover. Will reduce maintenance costs and serve local grain truck traffic.
RECONSTRUCTION TRUST FUND (RTF):							
6.	Pri.	MT 200	Winnett W	1984	9.3	6,962,000	**Reconstruction** on new alignment replacing old narrow 2-lane.
★	Pri.	US 191	Lewistown — Roy	1985	118.0	1,416,000	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	MT 200	Grassrange — Jordan				
★	Pri.	MT 19	Grassrange — Phillips Co. Line				
★	Pri.	US 87	Grassrange — Musselshell Co. Line				

★ Pavement preservation projects not shown on map

FIGURE 22
HIGHWAY PROGRAM: F.D. 5

Legend

Interstate
Primary
Secondary
Financial District Boundary

3 — Current Level Funding

5 — Reconstruction Trust Fund

Table 17
Project List
Financial District 6

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Int.	I-15	Brady N & S (Northbound Lanes)	1984	12.0	$3,000,000	**Rehabilitate and Resurface** roadway to restore structural integrity, extend service life and reduce maintenance costs.
2.	Pri.	US 89	Belt E & W	1985	10.6	1,760,000	**Resurface** existing pavement in an effort to reduce high maintenance costs and the hazard to vehicles.
3.	Pri.	US 89	Sun River N	1985	10.0	1,400,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
4.	Sec.	S 330	Ulm S (N Section)	1984	6.5	2,800,000	**Reconstruction** on existing alignment correcting a deteriorated narrow roadway, straightening out numerous sharp curves.
RECONSTRUCTION TRUST FUND (RTF):							
5.	Pri.	US 89	Freezeout Lake E & W	1984	12.5	1,173,000	**Widen and Repave** existing narrow roadway with a wider 2-lane contributing to a safer movement of traffic.
★	Pri.	US 287	Wolf Creek — Choteau	1984	177.2	2,100,400	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	US 89	Choteau — Dupuyer				
★	Pri.	US 89	White SulphurSprings — Belt — Great Falls				
★	Pri.	MT 80	Fort Benton — Stanford — Belt — Great Falls				
★	Pri.	US 87	Great Falls — Fort Benton — Big Sandy				
★	Pri.	US 87	Belt — Moore	1985	8.0	96,000	

★ Pavement preservation projects not shown on map

FIGURE 23
HIGHWAY PROGRAM: F.D. 6

Legend

- Interstate
- Primary
- Secondary
- Financial District Boundary
- 3 — Current Level Funding
- 5 — Reconstruction Trust Fund

Table 18
Project List
Financial District 7

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Int.	I-15	Helena N	1984	19.0	$6,000,000	**Rehabilitate and Resurface;** level roadway, adjust guardrail, and restore structural integrity to extend service life and reduce maintenance costs.
2.	Int.	I-90	Whitehall — Cardwell	1984	6.9	2,600,000	**Rehabilitate and Resurface;** level roadway, and restore structural integrity to extend service life and reduce maintenance costs.
3.	Urb.	—	Cruse Avenue — 6th to Neill in Helena	1985	0.3	1,237,000	**Construction** of new street completing Cruse Avenue and integrating Helena urban renewal area with arterial street system.
RECONSTRUCTION TRUST FUND (RTF):							
4.	Pri.	MT 200	Rogers Pass E (E Section)	1984	7.7	3,176,000	**Reconstruction** on existing alignment replacing a narrow two-lane road constructed in 1952 with a wider 2-lane. Existing road serves heavy grain traffic.
5.	Pri.	US 287	Toston S	1984	12.0	1,146,000	**Resurface** existing road and perform miscellaneous work to extend the service life and reduce maintenance costs.
★	Int.	I-90	E of Whitehall	1984	57.9	874,200	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	MT 55	Whitehall — Silver Star				
★	Pri.	US 12	Townsend — Meagher Co. Line				
★	—	Off-System	Augusta — Teton Co. Line				
ADVANCED CONSTRUCTION — INTERSTATE (ACI):							
6.	Int.	I-15	Elk Park N	1984	3.0	7,894,000	**Construction** of new 4-lane interstate just north of Elk Park to the Bernice South project. Replaces winding, aged section of 2-lane highway.
7.	Int.	I-15	Bernice S	1984	4.1	10,788,000	**Construction** of new 4-lane interstate replacing a winding, aged section of 2-lane highway.
8.	Int.	I-15	Bernice — Basin	1984	7.2	17,500,000	**Construction** of a new 4-lane interstate replacing a winding, aged section of 2-lane highway.

★ Pavement preservation projects not shown on map

FIGURE 24
HIGHWAY PROGRAM: F.D. 7

Legend

- Interstate
- Primary
- Secondary
- Financial District Boundary
- 3 — Current Level Funding
- 5 — Reconstruction Trust Fund
- 7 — Advanced Construction — Interstate

Table 19
Project List
Financial District 8

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Int.	I-90	Superior E & W	1984	19.7	5,355,000	**Resurface** and rehabilitate to restore structural integrity, extend service life, and reduce maintenance costs.
2.	Int.	I-90	Gold Creek E & W	1985	10.0	3,000,000	**Resurface** existing pavement to restore structural integrity and extend service life.
3.	Pri.	MT 200	Thompson Falls NW	1984	16.7	2,500,000	**Resurface** existing pavement; minor guardrail corrections. Improvements will extend the service life and protect the structural integrity of the road.
4.	Pri.	US 93	Brooks St. — Missoula	1985	1.2	1,320,000	**Construction** of new curb and gutter, sidewalk, lighting, signs and pavement marking on existing alignment.
5.	Sec.	S 382	Perma N	1985	2.8	1,100,000	**Reconstruction** on existing alignment replacing a narrow winding roadway and correcting horizontal and vertical curvature conditions.
RECONSTRUCTION TRUST FUND (RTF):							
6.	Pri.	US 93	DeSmet — Evaro	1985	5.5	4,300,000	**Reconstruction** and widening of the existing 2-lane into a 4-lane roadway. Heavy congestion of traffic warrants the 4-lane.
7.	Pri.	MT 200	Plains W	1985	7.0	732,000	**Resurface** existing roadway to extend the service life.
★	Pri.	MT 135	St. Regis — Paradise	1984	82.0	976,000	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	MT 200	Idaho Line — Plains				
★	Pri.	MT 200	Missoula — Lewis & Clark Co. Line				
★	Pri.	US 93	Missoula — Lake Co. Line				
★	Pri.	MT 141	Avon — Helmville				
★	Pri.	MT 83	Clearwater Jct. — Flathead Co. Line	1985	10.0	120,000	
ADVANCED CONSTRUCTION — INTERSTATE (ACI):							
8.	Int.	I-90	St. Regis E & W	1984	7.3	6,000,000	**Reconstruction** of interstate at St. Regis. Last stage in construction to close gap in interstate on I-90 west of Missoula.

★ Pavement preservation projects not shown on map

FIGURE 25
HIGHWAY PROGRAM: F.D. 8

Legend

- Interstate
- Primary
- Secondary
- Financial District Boundary
- 3 — Current Level Funding
- 5 — Reconstruction Trust Fund
- 7 — Advanced Construction — Interstate

Table 20
Project List
Financial District 9

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Pri.	MT 41	Dillon — Twin Bridges	1984	7.3	$999,000	**Resurface** existing pavement to extend the service life and protect the structural integrity of the road.
2.	Pri.	MT 48	Anaconda — Warm Springs	1985	6.1	548,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
3.	Pri.	MT 41	Twin Bridges N	1985	6.4	578,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
4.	Sec.	S 278	Jackson N	1985	7.2	600,000	**Resurface** on existing alignment. Existing road is narrow, distorted and in need of a new surface. Improvements will increase safety and reduce maintenance costs.
RECONSTRUCTION TRUST FUND (RTF):							
5.	Pri.	US 287	8 Mi. S. of Cameron	1984	5.5	1,696,000	**Reconstruction** on existing alignment to reduce heavy maintenance on existing surface and alleviate snowdrifting problems.
★	Int.	I-90	W of Opportunity Jct.	1984	54.3	773,800	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	MT 43	Idaho Line — Wisdom				
★	Pri.	MT 41	Dillon — Twin Bridges				
★	Int.	I-15	Idaho Line — Butte	1985	44.0	1,672,000	

★ Pavement preservation projects not shown on map

FIGURE 26
HIGHWAY PROGRAM: F.D. 9

Legend

- Interstate
- Primary
- Secondary
- Financial District Boundary
- 3 — Current Level Funding
- 4 — Reconstruction Trust Fund

Table 21
Project List
Financial District 10

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Int.	I-90	Rocky Canyon	1985	5.3	$1,990,000	**Rehabilitate and Resurface;** level roadway and restore structural integrity to extend the service life and reduce maintenance costs.
2.	Int.	I-90	Bozeman E & W	1985	—	50,400	**Expansion Joint Repair** to prevent damage to vehicles and snow plows.
3.	Pri.	US 12	Shawmut W	1984	8.4	925,000	**Widen and Repave** existing pavement providing a smoother driving surface and safer movement of traffic.
4.	Pri.	MT 85	Jackrabbit Lane	1985	6.7	1,376,000	**Widen and Repave** existing pavement providing a smoother driving surface and safer movement of traffic.
5.	Pri.	US 191	Gallatin Canyon	1985	6.0	1,320,000	**Widen and Repave** existing pavement providing a smoother driving surface and safer movement of traffic.
6.	Pri.	MT 86	NE of Bozeman	1984	—	430,000	**Reconstruct** intersection to improve safety and traffic movement.
RECONSTRUCTION TRUST FUND (RTF):							
7.	Pri.	US 89	Clyde Park S	1984	7.0	3,800,000	**Reconstruction** to replace old narrow road, replace drainage structures and provide more snow storage, reducing maintenance costs.
8.	Pri.	US 191	Harlowton N	1984	8.9	2,535,000	**Widen and Repave** including truck climbing lane for southbound traffic. Replaces narrow road constructed in 1949 which has a heavy congestion of truck traffic.
9.	Sec.	S 205	Bozeman — Three Forks	1985	28.7	2,300,000	**Resurface** existing roadway to restore the service life and reduce maintenance costs. Roadway has a heavy volume of traffic.
★	Pri.	US 191	West Yellowstone — Belgrade	1984	162.5	1,948,000	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	US 287	Hebgen Dam E & W				
★	Pri.	US 89	Gardiner — Livingston				
★	Pri.	US 191	Big Timber — Harlowton				
★	Pri.	US 287	Three Forks — Harrison				
★	Pri.	US 12	Townsend — Harlowton				
★	Pri.	US 89	Livingston — White Sulphur Springs				
★	Pri.	MT 86	Bozeman — Wilsall				
★	Pri.	US 12	Harlowton — Golden Valley Co. Line	1985	20.0	240,000	
ADVANCED CONSTRUCTION — INTERSTATE (ACI):							
10.	Int.	I-90	Springdale W	1985	9.2	9,014,000	**Construction** of eastbound lanes to complete I-90 to full 4-lane standard from Butte to Billings.

★ Pavement preservation projects not shown on map

FIGURE 27
HIGHWAY PROGRAM: F.D. 10

Legend

- Interstate
- Primary
- Secondary
- Financial District Boundary
- 3 — Current Level Funding
- 5 — Reconstruction Trust Fund
- 7 — Advanced Construction — Interstate

Table 22
Project List
Financial District 11

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Int.	I-94	Hysham Hills	1984	10.0	3,000,000	**Resurface and Rehabilitate;** level roadway and restore structural integrity to extend service life and reduce maintenance costs.
2.	Int.	I-90	Reed Point E & W	1985	11.8	4,061,000	**Resurface and Rehabilitate;** level roadway and restore structural integrity to extend service life and reduce maintenance costs.
3.	Int.	I-90	Park City E & W (Eastbound Lanes)	1985	13.0	1,950,000	**Resurface and Rehabilitate;** level roadway and restore structural integrity to extend service life and reduce maintenance costs.
4.	Int.	I-90	Park City E & W (Westbound Lanes)	1985	17.0	3,400,000	**Resurface and Rehabilitate;** level roadway and restore structural integrity to extend service life and reduce maintenance costs.
5.	Int.	I-90	Hardin W	1985	6.2	1,860,000	**Resurface and Rehabilitate;** level roadway and restore structural integrity to extend service life and reduce maintenance costs.
6.	Pri.	US 87	Billings N	1985	9.7	1,412,000	**Widen and Repave** existing roadway extending the service life of the road and providing a safer facility.
7.	Pri.	MT 3	Lavina S	1985	6.1	650,000	**Resurface** existing pavement protecting the structural integrity and extending the service life.
8.	Sec.	S 308	Red Lodge E (Bear Creek Sec.)	1984	1.7	750,000	**Reconstruction** of the road near the town of Bear Creek and minor widening and overlay on the westerly and eastern portions of the project.
9.	Sec.	S 416	Int. of FAS 416 & Jellison Road	1985	——	30,000	**Reconstruction** of the intersection providing a safer facility and reducing maintenance costs.
10.	Sec.	S 381	Goulding Cr. Rd.	1985	4.8	880,000	**Resurface** an existing graveled road for smoother and wider riding surface. Also spot improvement to hor. and vert. alignment.
11.	Urb.	——	Central Avenue & 19th St. W — Billings	1985	——	64,000	**Traffic Signal Installation** to provide smoother progression of traffic and reduce accident severity.
12.	Urb.	——	Grand Avenue & 8th St. W — Billings	1985	——	64,000	**Traffic Signal Installation** to provide smoother progression of traffic and reduce accident severity.
RECONSTRUCTION TRUST FUND (RTF):							
13.	Pri.	US 212	Boyd S	1984	8.9	1,760,000	**Widen and Repave** existing roadway to restore service life, improve safety for traffic, and reduce maint. costs.
★	Pri.	US 212	Cooke City — Red Lodge	1984	6.0	72,000	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	US 87	Roundup — Petroleum Co. Line	1985	58.0	696,000	
★	Pri.	US 87	Billings — Roundup				
★	Pri.	US 12	Harlowton — Wheatland Co. Line				
★	Pri.	US 12	Roundup — Rosebud Co. Line				
ADVANCED CONSTRUCTION — INTERSTATE (ACI):							
14.	Int.	I-90	Wyoming Line N	1984	4.5	10,000,000	**Construction** of a new 4-lane interstate between Aberdeen and the Wyoming line. This project will tie into the Wyoming interstate presently under construction.
15.	Int.	I-90	Lodge Grass S	1985	11.7	15,000,000	**Construction** of a new 4-lane interstate between Lodge Grass and Wyola. This project will tie into the interstate presently under construction.

★ Pavement Preservation projects not shown on map

FIGURE 28
HIGHWAY PROGRAM: F.D. 11

Table 23
Project List
Financial District 12

No.	System Desig.	Route No.	Project Location	Letting Date (FY)	Miles	Cost	Scope of Work
CURRENT LEVEL FUNDING:							
1.	Pri.	US 12	Locate E	1984	11.8	$3,252,000	**Widen and Repave** existing pavement providing a smoother driving surface and safer movement of traffic.
2.	Pri.	MT 59	Main & Haynes — Miles City	1984	1.3	3,600,000	**Reconstruction** on existing alignment replacing existing narrow 2-lane with a wider 2-lane including improvements for left turns and a storm drain system.
3.	Sec.	S 484	Ashland — Otter Creek	1985	10.0	1,200,000	**Pave** a previously graveled section of roadway.
4.	Urb.	—	Leighton Blvd. — Mt. Ave. to Haynes Ave. in Miles City	1984	1.0	1,065,000	**Reconstruction** on the existing alignment including storm drains and signing. Work will improve a deteriorating and inadequate urban system street.
RECONSTRUCTION TRUST FUND (RTF):							
5.	Pri.	MT 59	S of Miles City	1984	5.0	2,000,000	**Resurface** existing roadway with spot safety improvements to resore the service life and reduce maintenance costs.
★	Int.	I-94	Miles City — Hathaway	1984	13.0	156,000	**Pavement Preservation — Sealcoat** to exclude water and provide skid-resistant surface.
★	Pri.	US 12	Forsyth — Mussellshell Co. Line	1985	107.0	1,284,000	
★	Pri.	MT 59	Miles City — Broadus				
★	Pri.	US 12	Miles City — North Dakota Line				
★	Pri.	MT 7	Baker — Wibaux Co. Line				

★ Pavement preservation projects not shown on map.

FIGURE 29
HIGHWAY PROGRAM: F.D. 12

Legend

Interstate
Primary
Secondary
Financial District Boundary

3 — Current Level Funding
5 — Reconstruction Trust Fund

400 copies of this public document were published at an estimated cost of $3.09 per copy for a total cost of $1,235.07, which includes $1,105.07 for printing and $130.00 for distribution.